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ABSTRACT

These two volumes bring together writings on technical and scientific problems such as distributional justice, the impact of government policy on equality between generations, and the viability of economic policies. Volume 1 encompasses four areas. Area 1 is composed of background papers including the major policy issues of education, inequality and life chances, inequalities in the distribution of education between countries, sexes, generations and individuals, and inequality in the distribution of personal income. Area 2 covers the distribution of educational opportunity. Area 3 addresses educational policy options and includes papers on strategies for educational equality and distributional impact of methods of educational finance. Papers on social mobility and equality are addressed in the last section. Volume 2 includes two major topics; the impact of education on earnings, and the role of education in the overall framework of equalizing policy instruments. Among the papers from the former topic are income equality and economic development, a case study. Income distribution policy in the United States is one of the issues raised in the latter topics. Conclusions on the issues raised in the seminar are provided. (Author/AM)

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Education, inequality and life chances

L'éducation, les inégalités et les chances dans la vie

VOL. 1

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INTRODUCTION

Secretary General's Opening Address

I am glad to have the opportunity to open this Seminar. Inflation and shortages are the problems that seem to loom largest at the beginning of this New Year, but behind these problems lie questions concerning the distribution and redistribution of income and wealth - and life chances - which have become of increasing importance in O.E.C.D. countries. No-one can doubt that, in the hard times ahead, the viability of economic policies will depend to an important extent on whether they are looked upon as equitable and just.

This is a highly complex social and political issue, but one which is becoming more and more urgent as inflation sharpens social tensions; and as rising transfer payments pace the rise in public expenditure and create the need for new tax revenues. The issues arise in many fields in O.E.C.D., both economic and social, and they are issues in which governments in most countries have a major interest, particularly in times of recession like the present in which unemployment is nearing record post-war levels.

Governments face decisions involving distributional justice in many fields: in providing health and education services; in attempting to create incomes policies; in subsidising housing; and in providing unemployment benefits and old age pensions. In all these areas, quantitative assessment of the distributional impact is greatly hampered by lack of information. Even more difficult is the problem of adding up the impact of different decisions to see the overall repercussions. Nevertheless, work is being done in the Organisation to agree on the methodology and improve the comparability of statistics on public expenditure in general, and income transfers in particular. Furthermore, there are very difficult methodological problems involved in measuring the impact of government policy.

The problems are even more complicated in measuring the impact of government policy on equality between generations.

For these reasons the O.E.C.D. Committees on Education and on Manpower and Social Affairs thought it highly timely to bring together the best talent we could find in the academic world to illuminate these very difficult technical and scientific problems, in which progress must be made if policy is to be more articulate and more effective. We would also like your guidance on the most promising lines for further work in this field, both in data gathering and methodology.

It is a field in which we intend to intensify our activity. On the economic side we are moving ahead with a programme covering the macro-economic aspects of the main sectors of public expenditure. On the social side we have recently created a unified directorate in O.E.C.D. to deal with social policy issues, and a group of Member countries have now agreed to undertake national reviews of progress in the social field. Equality issues will be a major part of the exercise.

The O.E.C.D. countries can benefit greatly by increased mutual understanding between different intellectual disciplines, and by better understanding between the academic world and the practical world of government policy-making and implementation. We have, therefore, gathered together here sociologists, economists, educationists and people engaged in day-to-day policy work in these fields. It is very difficult to organise such a meeting in a way which will provide scope for a coherent discussion intelligible to all parties concerned. For this reason, we have made a major effort to get good papers, good discussants, to set out the major themes in our own paper and to provide an up-to-date background review of the state of knowledge.

I wish you well in a difficult task, which is of major importance to us.

The Equality Issue in Relation to Other OECD Work in the Social Field (1)

Equality is a highly complex, social, economic and political issue - all the more urgent today because of social tensions resulting from inflation and slower economic growth in the OECD countries. Broadly speaking, there are two sides to the problem - equality of income and equality of opportunity - but they are interconnected both conceptually and in terms of policy, through the concept of "life chances".

There is of course a potential but undefined conflict between economic growth and equality of income, on the assumption that income differentials are needed if the manpower and social structures necessary for a modern economy are to be sustained. Whilst this may be true, the existing range of income distributions in the advanced OECD economies suggests that, given time for the necessary social adjustments, more equality of income distribution could be achieved without undermining economic growth and efficiency. Moreover, the lesson of history is that there is a wide range of income distributions within which economic growth may be sustained.

Even if we could postulate an optimum equality of income, there would still remain the meritocratic question of the recruitment of individuals into the leadership roles of society. Meritocracy now has a bad name in some quarters, but it may be argued that whatever income structure and social structure society opts for, a complex economy - with complex technologies and manpower structures - will always face the problem of selection into the élites on the basis of merit.

However, the debate on meritocracy generally speaking ducks the central issue of the values on the basis of which merit is defined. There can be little doubt that the existing educational systems of OECD countries are to a considerable extent functioning as the instruments of meritocracy, but on the basis of a narrow definition of the abilities and talents that society needs. Indeed, the role of education in equality will be properly stated when the educational system is used to develop a wider range of talents, abilities and attitudes in children, that is to say on the basis of structures and curricula which do not prejudge what society wants in a manner favourable to existing élites.

Whatever answers may be given to the above questions, the evidence suggests that our social and economic systems are functioning in such a way that particular groups in society are disadvantaged - whether they be youth, women or migrants. The emergence of such disadvantaged groups in relatively affluent societies is a complex problem for which no single policy, whether in the field of income distribution, education or the labour market, can provide the central

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1) This paper was prepared by J.R. Gass, Director, Directorate for Social Affairs, Manpower and Education, OECD.

answer. In the current debate, there is a tendency to abandon education as a key policy area for equality and to look to income transfers as a more direct and positive way of providing benefits for these groups. There is also an emerging recognition that the labour market is functioning in such a way that some groups in society are disadvantaged in the access to income through work. However, it would be a mistake not to recognize that an interrelated set of policy instruments is needed for any serious attack on these problems, and that to displace one policy by the other is likely to be ineffective.

The recognition of the need for a more integrated policy approach has had an important influence on OECD work related to equality. In the first place, the work on social indicators has led us to the conclusion that equality should not be looked upon as a discrete social objective, but rather as the distributional aspect of a whole series of aspects of wellbeing related to health, individual development, employment, income, social facilities and political influence. In other words, disadvantage is a complex phenomenon reflected in unequal access of particular groups to the whole range of goods and benefits which a modern society makes available to individuals.

This approach is reflected in OECD work which attempts to develop the concept of integrated social policies in relation to which five Member countries (Austria, France, Germany, Japan and the Netherlands) have now agreed to establish national pilot teams. These teams will attempt to carry out a review of social progress, examine the instruments which can contribute to further social progress and propose the policy-making structures relevant to this more integrated approach. To a large extent the focus will be on the distributional aspects of social policies in the broad sense mentioned above.

In addition, of course, the OECD is currently working on many of the specific policy problems and instruments related to the general objective of equality in society. The impact of income maintenance programmes on public expenditures, the functioning of the taxation system in relation to equality and the distributional aspects of income transfer programmes are being studied respectively by Working Party No.2 of the Economic Policy Committee, the Fiscal Affairs Committee and the Working Party on the Social Aspects of Income Transfer of the Manpower and Social Affairs Committee.

The relationship of educational opportunities to equality has also been a long-standing priority in the work of OECD in the field of education. Progressively this work has led the Organisation to look upon the interaction of education and equality in terms of complex interactions between education, access to particular positions in society and to lifetime income. This analysis has led to proposals for redistributing educational opportunities over the life cycle, within the framework of a general strategy for recurrent education, on which the Organisation is preparing a report for Ministers. The development of a recurrent educational system for youth and adults highlights the need for more equality of opportunity within the basic educational system itself, and even down to the pre-school years, in order to avoid early social selection on the basis of educational attainment. Major programmes on these issues are currently in operation as part of the programme of the OECD Centre for Educational Research and Innovation.

This work on the interaction between educational opportunities and social opportunities has led the OECD to focus on the problem of the 16-19 year age-group where the mechanisms of social selection are most clearly at work through access to further educational opportunities, and in particular higher education. The analysis of opportunities for youth within this age-group has led to the proposal for a wider range of educational and work opportunities, with much more interaction between education and working life.

It is at this stage that one begins to see how the labour-market functions in such a way as to give advantage to those already in employment, particularly in sectors which have been strongly unionised. In other words, a great many of the decisions affecting the life chances of individuals are taken in the internal labour market of firms, hardly at all influenced by public labour market policies as they are currently conceived. This has led the OECD to raise the whole question of the relationship between public and enterprise manpower policies, if the disadvantages of some social groups in the labour market are to be overcome. Work is also proceeding in the Organisation on the specific problems of the main disadvantaged social groups, namely, women, youth and migrants.

This Conference represents an attempt, on the basis of a considerable amount of analytical work done in various Member countries, to bring together the income distribution, social mobility and educational aspects of the problem of equality. If, as seems possible, the OECD countries will experience a period of slower growth in the years ahead, the issue of equality is bound to emerge as one of the central social and economic policy issues. It is our hope that the Conference will provide the launching pad for an integrated attack on these problems in the work programmes of the Organisation.

SECRETARIAT BACKGROUND PAPERS

DOCUMENTS DE BASE DU SECRETARIAT

Education, Inequality and Life Chances: The Major Policy Issues[1]

The purpose of the OECD seminar is to clarify the impact which educational policy has and can have on social structure and individual life chances. Recently, Christopher Jencks and his associates have suggested that the role of education as an instrument of social policy is negligible, and that governments which wish to promote greater equality should place their main trust in other policy weapons (2). It is hoped that the seminar will weigh the evidence for and against the Jencksian hypothesis, and try to assess the relative importance of education in the broad framework of policy instruments for equality.

The issues are, of course, complex and controversial, involving economic, sociological and educational disciplines. Most of the papers deal with analytical issues and are not directly oriented to policy questions. Nevertheless, the underlying OECD interest is a policy one, and the Secretariat has tried to arrange the agenda in terms of what seem to be the major policy issues.

In the past, a great deal of weight has been attached to education as a vehicle of equalisation, and it has generally been assumed, somewhat vaguely, that increased public spending on education would contribute to this end. However, it is clear that people mean different things when they refer to the equalising role of education. For some, educational expansion has implied a gradual downward expansion of opportunity, giving bright children from poorer sections of the community a chance to rise in the social hierarchy. Others see the expansion of education as a process which will change social structure - reducing income dispersion because it reduces the dispersion in qualifications between individuals. Some are more interested in the direct effect which education has on people's attitudes, i.e. they want to use the educational system as a vehicle of fraternity - reducing status differentials between people. (They may also want to remove other differences between people which are not necessarily related to social class, e.g. differences in religious or ethnic allegiance or differences in language.) More recently, radical egalitarians (e.g. Husén and Halsey) have stressed the desirability of unequal educational facilities to offset other inequalities which affect life chances.

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1) This paper was written by Angus Maddison of the OECD Secretariat.

2) See C. Jencks and Associates, Inequality, Basic Books, New York, 1972.

The major policy and analytical issues can be classified under five major headings as follows:

a) identification of the existing distribution of educational opportunity and the factors which affect it;

b) assessment of the policy options which affect educational opportunity;

c) determination of the role which education has in promoting social mobility;

d) assessing the impact of education on earnings;

e) assessing the role of education in the overall framework of policy instruments to promote equality.

It is not easy to define the equality issue succinctly. The arguments for egalitarianism are quite varied and highly political. Most people feel that absolute income equality would conflict with other goals such as efficiency or freedom. They aim to reduce inequality not to eliminate it. A good deal of the argument for equality is concerned with a search for justice and equity, but some writers are less concerned with the size of social distinctions than with their quality and the extent to which they induce feelings of social divisiveness (1). There is sometimes ambiguity about which dimension of equality is at issue. Economists usually lay stress on income and wealth, because these are convenient general purpose proxies for socio-economic welfare, and they are attributes which are amenable to public action (2). Sociologists generally use a prestige ranking of occupations because they are more interested in status than income and because occupation is easier to measure or to recall than income. There are many other differences between people - in beauty, strength, energy, intelligence, etc. which affect individual welfare and happiness very strongly, but not much can be done to redistribute those and most of them have not been measured or are not quantifiable. The main concern here is with dimensions of social differentiation which are amenable to public policy.

Egalitarians may be concerned with "vertical" barriers of the hierarchical type, with "horizontal" discrimination on grounds of sex, religion and race, or with regional inequalities. Most of the seminar papers are concerned with the first type of problem.

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1) For the first type of argument, see J. Rawls, A Theory of Justice, Harvard, 1971, and for the second R.H. Tawney, Equality, Allen and Unwin, London, 1931.

2) Recently, economists have tried to move towards a broader definition of economic welfare by producing a measure which reflects the joint effects of income, wealth, labour force experience and voluntary leisure, see M.K. Taussig, Alternative Measures of the Distribution on Economic Welfare, Industrial Relations Section, Princeton University, 1973, who concludes that welfare inequality is greater than income inequality.

The way the degree of inequality is measured will depend upon the policy issues under examination. The Gini coefficient is often used because it is sensitive to variations between all levels of income. However, people concerned with inequality as a policy issue do not normally look at the social hierarchy as a smooth continuum. The distinction is usually between groups or classes with conflicting interests; with most attention concentrated on what people get at the top and bottom - the rich and the poor - rather than on the fate of those in the middle. The simple rich-poor dichotomy is very useful because it covers the main groups most seriously affected by policies for equality, though there is obvious scope for argument on who is rich and who is poor (1).

It is highly desirable that policy analysis of equality issues should define which groups are of primary interest and try to assess what degree of equalisation can reasonably be set as a goal for policy.

I. The Distribution of Educational Opportunity

Most governments have a strong commitment to equalise opportunity, particularly in education which has been considered both an important good in itself and a means to higher earnings and social status. The stress on equality of opportunity began in the eighteeth century with Rousseau and Jefferson and was a leitmotiv of the American and French revolutions. Equal opportunity has a strong appeal because it puts selection on a more efficient basis than in a hereditary system, it provides a safety valve for talented malcontents and it preserves personal liberty.

However, it is clear that after two centuries of rhetorical commitment to equality of opportunity, access to education is still very unevenly distributed in OECD countries, although the distribution of opportunity has been moving in an egalitarian direction in the past two decades in which post compulsory education has expanded enormously. This was particularly true in the decade of the 1960s, when higher education enrolment rates rose on average by 6 per cent a year, and secondary school enrolment rates by 4 per cent a year, i.e. after adjusting for population changes. One would expect expansion on this scale to open up access to education for children with low income parents, particularly as there has been a big growth in loans and grants for student maintenance. Data are not available on family income levels of those in education, but some information is available in most countries on the socio-economic background of students in higher education, and this is summarised in the Secretariat paper for this seminar on "Inequalities of Educational Opportunity by Social Origin in Higher Education". It can be seen from this that the upper

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1) See A.B. Atkinson "On the Measurement of Inequality", Journal of Economic Theory, Vol.2, 1970 and A. Sen, On Economic Inequality, Oxford, 1973 for a discussion of appropriate measures of inequality.

social groups are still strongly favoured in their access to education and that some countries have much less equality of opportunity than others. However, there seems to have been a substantial mitigation in the privileged status of the upper group in the 1960's because they were much nearer to saturation of their aspirations to higher education and educational expansion has been so rapid. The nearer countries approach to universal attendance at a particular level of education, the closer is the convergence in degree of access by social class. It would seem that progress towards egalitarian goals is quicker than some recent authors have thought (1).

Eicher and Mingat (2) have attempted to measure educational opportunity after making explicit allowance for differences in I.Q. by social group. If one accepts the validity of such measures it means that we are nearer egalitarian goals than one might think by using cruder measures. But the validity of this type of adjustment is highly questionable and widely contested.

It seems safe to conclude that though inequality in educational opportunity may have been declining quite fast, much further progress will need to be made before the educational achievement of different social groups can be equalised.

There has been major controversy in recent years about the relative influence of inherited personal characteristics, family background and schools on educational attainment and it is clear that the importance of the former is considerably greater than was thought earlier. As Tawney said, "the psychological and political theory of the age between 1750 and 1850 ... greatly underestimated the significance of inherited qualities, and greatly overestimated the plasticity of human nature" (3). For this reason, it has become increasingly recognised that equality of access will not lead to equality of attainment.

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1) J.E. Floud showed in studies for the U.K. that expansion of education does not always reduce inequality of opportunity, but she was dealing with a period with much less expansion than in the 1960s. See J.E. Floud et al., Social Class and Educational Opportunity, Heinemann, London, 1956. Boudon has recently suggested that decline in inequality of educational opportunity has taken place slowly - placing heavy reliance on a former OECD study. See R. Boudon, Education Opportunity and Social Inequality, Wiley, New York, 1973. See also C.A. Anderson "Expanding Educational Opportunities : Conceptualisation and Measurement", mimeo, Stockholm 1974 who shows the degree of progress in Sweden in the postwar period.

2) J.C. Eicher and A. Mingat, "Education and Equality in France", a paper for this seminar.

3) See R.H. Tawney, Equality, Allen and Unwin, London, 1931, p. 48.

A great deal of heat has been generated in the past few years by revival of the controversy on the importance of genetic factors on intelligence and school achievement. Burt, Jensen, Herrnstein and Eysenck (1) have stressed the importance of inheritance which according to them accounts for 80 per cent of the variation in cognitive skills, environment (both family and school) being responsible for only 20 per cent. The exact proportions are hotly contested, Jencks claiming that heredity accounts for only 45 per cent of the variation in cognitive skills.

Recent research on the relative influence of home and school on learning has tended to stress the influence of the former at the expense of the latter. The Coleman report in the U.S.A., the Plowden report in the U.K. and the massive international studies carried out by the International Association for the Evaluation of Educational Achievement (IEA) suggest that in several countries, schools are not nearly so effective as had been imagined in eliminating learning handicaps that derive from unequal home backgrounds (2). The Coleman report was a big survey sponsored by the U.S. Office of Economic Opportunity, designed mainly to see what difference there was in school facilities for black and white students, and whether any such difference affected ability to learn. The report showed, rather unexpectedly, that educational facilities per pupil did not vary much between black and white pupils within particular regions (though they were worse in the South, where black pupils are most heavily concentrated), and that the lower performance of black pupils was due largely to inferior home background. The evidence in the Plowden report also indicated that schools do not offset the learning disadvantages of those with deprived home backgrounds, and Douglas' studies came to the same conclusion for the U.K. (3). All of these reports have tended to weaken the hopes that access to equal facilities can create equality of opportunity. Their impact has probably been most depressing in the U.S.A.

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1) See A. Jensen, "How much Can we Boost I.Q. and Scholastic Achievement", Harvard Educational Review, Winter 1969.

2) See J. Coleman, Equality of Educational Opportunity, U.S. Dept. of Health, Education and Welfare, Office of Education, Washington, D.C., 1966; Children and Their Primary Schools, 2 vols. Central Advisory Council on Education (England) H.M.S.O., London, 1967; T. Husén, ed., International Study of Achievement in Mathematics, Wiley, New York, 1967, and International Studies in Evaluation, vols. I-IX (six subject study), J. Wiley, New York, 1973-4.

3) J.W.B. Douglas, The Home and the School, MacGibbon & Kee, London 1964; J.W.B. Douglas, J.M. Ross and H.R. Simpson, All Our Future, P. Davies, London 1968.

However, there are several reasons for thinking that the Coleman report's pessimism about the equalizing possibilities of schooling is exaggerated. In the first place, it based its conclusions on tests of verbal ability, where home background is more influential than it is in other subjects. This has been shown in the I.E.A. studies of proficiency in foreign languages and science, where the school influence is much more important. Secondly, the technical methods used in the Coleman and the I.E.A. reports to distinguish the influence of home from that of school exaggerate the former because most of the interaction between home and school is attributed to home. Thirdly, and most important, all of the data used in the Coleman, Plowden and I.E.A. reports refer to students whose experience of school has been much more homogeneous than their home background. If one could get samples of children with wider ranges of educational experience, including those with no education at all, one might reach quite different conclusions about the relative impact of home and school. In most Western countries, such samples are not and will not be available, because no one is likely to permit children to be deprived of all schooling for experimental purposes. However, the range of testing could be extended to cover some of those who have dropped out of school, as well as those in school, and such tests might produce very different results. On balance, recent pessimism about the role of schools in developing cognitive skills is probably overdone.

It is, of course, important to remember that I.Q. and family background are not the only reasons which inhibit children of low income families from using free public facilities for most compulsory education. Poorer families may not be able to use these opportunities fully because they often cannot afford to sacrifice the wages which their children can earn. Higher education can usually be financed by qualified entrants with low-income parents because there are generally adequate grants and loans, but for the 16-19 age-group, maintenance facilities are much less generous and this is the age at which the drop-out rate for children of poor families is most serious. If equal educational opportunity is to be real rather than rhetorical, it is necessary either to extend compulsory education or to broaden the range of income support at the secondary level. Most governments provide family allowances and tax privileges which encourage voluntary attendance at school and some countries give substantial grants or loans for secondary school attendance. However, these are not big enough to offset the earnings which can be gained from work, so that economic constraints on access to education are still operative, even when education is nominally free.

II. Educational Policy Options

The papers by Husén and Woodhall are addressed most directly to ways of using education as an equalising policy instrument but they do not cover all of the items on the policy agenda of egalitarians. Here we simply try to set out briefly the range of policy instruments that egalitarians have suggested in the past.

a) There has been a traditional stress on the benefits to be derived from steady expansion of free public educational facilities to more and more of the population. This policy helps the poor because it raises their absolute level of qualification, and it helps particularly the talented people from poorer families by making the educational opportunity more meritocratic.

b) Opportunity can be further equalised if provision of free public educational services is supplemented by public financial support for pupil maintenance on a means-tested basis at all levels of post-compulsory education. Most OECD countries follow this policy, but in many cases the maintenance support is greatest in higher education and weakest at the secondary level, where the drop-out rate for low income students is greatest.

c) Radicals claim that policies (a) and (b) are inadequate. They stress learning handicaps that derive from poor home backgrounds. Their policy prescription encompasses (a) and (b) but also urges positive discrimination to offset home handicaps, i.e. concentration of school resources more heavily on those with learning difficulties. Very few countries follow such a general strategy for the "disadvantaged" though they may apply it in the case of those with specific physical or mental disabilities. However, as Coleman demonstrated, discrimination against the disadvantaged is smaller than was once thought. The following issues arise in relation to the radical argument.

If a narrowing of achievement gaps is the objective, how much narrowing is intended? Equalisation of educational achievement for broad social groups would be very costly if it is possible at all. Many of the disadvantaged might prefer non-educational compensations, and some of the pedagogic goals of compensatory strategy may be more easily attained by extra-educational policies, such as help with housing, family income support, family planning programmes, home helps, foster care etc. Some programmes intended to be compensatory e.g. early childhood education, or second chance options for further or higher education may operate in such a way that their effect is non-compensatory. These are policy issues of major importance for a seminar of this type.

d) Many egalitarians place considerable emphasis on removal of institutional and examination barriers particularly at the secondary level. They want to reduce or abolish selection, tracking and repeating, because these practices reinforce the educational problems of the disadvantaged. Most OECD countries have reduced these barriers and are moving towards a more "comprehensive" approach to secondary education which widens options for transfer. Those who argue for such policies may want to equalise opportunity but they may also want to use education to produce a greater sense of fraternity, i.e. to reduce barriers between different sections of the community who previously went to different kinds of school. Some see comprehensive reform and decertification as a way to ensure that schools promote personal fulfilment - which they rate higher than competitive skills. For some of these critics, such as Gintis, Illich, or Bourdieu, the present day school experience is something like being in prison. The opposing school would argue that comprehensive reform and decertification reduce the quality of education, particularly for the most talented. The evidence appears to contradict this, but there is certainly not enough evidence to satisfy everyone.(1) This problem varies a good deal between countries, but is an important egalitarian issue in most countries.

e) Another major policy issue is the role of the private sector. Attempts to reduce selection and class privilege in the public sector can be bypassed if there is a private education sector. Some egalitarians therefore argue that the private sector should be abolished. This obviously raises major political questions of the trade-off between equality and other goals. The point is not raised in any of the conference papers, but is obviously worth examination in the egalitarian debate.

f) Finally there is the Jencks position, i.e. schooling has no significant social or economic value, and virtually all of the preceding strategies are useless. In practical terms, Jencks' policy is similar to that of the "progressive educationalists" who lay most stress on the need for schools to provide personal fulfilment.

III. Impact of Education on Social Mobility

Most of those who stress the importance of equality of educational opportunity do so not only because education is a good in itself, but because it is presumed to have an impact on life chances. People from low income or low status families

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1) See A.C. Purves and D.V. Levine, Educational Policy and International Assessment, McCutchan, California, 1975, for a review of some of the evidence.

who obtain a good education are expected to be able to use it later to improve their social position, i.e. to rise higher in the social hierarchy than their parents.

In a technocratic society where credentials would seem to be growing more important, one would expect education to be a very dominant element in social mobility, but it is obvious that education is not the only road to social mobility. There are many millionaire pop stars with little education. Anderson threw doubt on the strength of the relationship some years ago and Boudon (1) has made an even stronger challenge more recently. Boudon argues that "Except under very special conditions which are unlikely to be met, a highly meritocratic society will not necessarily give to those who have reached a high level of education more chances of promotion or fewer chances of demotion than those whose level of education is lower. This apparent paradox derives from two circumstances. First, since those who obtain a high level of education more frequently have a higher background, they have to climb higher in the hierarchy of social status in order not to experience demotion. Second, one consequence of the discrepancy between educational and social structure is that even under a high degree of meritocracy, people with the same level of education will reach different social status". Boudon also stresses that people of lower social origin often have low achievement motivation even when they have high levels of education. Jencks does not take the same line of argument as Boudon, but stresses the variety of causes which lead to social success, and points to the wide dispersion of educational qualifications of people in similar occupations.

The Boudon paradox is a major challenge to orthodox belief, and it is obviously worth looking closely at both his logic and the facts. As far as the logic is concerned, it really boils down to the argument that education is not too important in social mobility. If the facts suggest that mobility has been stable in a period of rising educational opportunity then Boudon's paradox is important.

Measurement of social mobility is a rather new science and there are not enough longitudinal or cross section studies to get a clear view of what has happened over the past decade or so in OECD countries. There is certainly enough information to show that social position, particularly in the higher groups is very heavily influenced by parental background, as is clear from tables 1 and 2. The Halsey paper for this seminar deals with one of the few available studies which shows changes in mobility over time. The papers by Miller, Diez-Nicolas and Eicher all deal with this theme. The most elaborate study of this type already available is that of Blau and Duncan for the United States.

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1) See C.A. Anderson, "A Sceptical Note on Education and Mobility", in A.H. Halsey, J. Floud and C.A. Anderson, Education Economy and Society, Macmillan, London 1961, and R. Boudon, op. cit.

Blau and Duncan concluded that social mobility has not changed much in the U.S.A. since the turn of the century, that most social mobility is short-distance mobility, that education and parental occupation are a strong influence and that social mobility is a good deal smaller than it would be if people's occupations were simply a matter of luck. They felt that "education exerts the strongest direct effect on occupational achievement" (1), though it is only one among several factors.

There are two major problems in mobility studies which attempt to explain the role of education. One is to collect enough data. Very seldom does one survey provide everything needed to test the hypothesis being examined, though some writers, e.g. Jencks, have managed to analyse a good deal of potential influences by astute carpentry of different data sources. It also helps a good deal to have studies for a number of countries with different education systems (2). The other problem is to specify a model and technique of analysis which will enable the various causal factors to be disentangled. In the nature of things, factors like home background, intelligence, and schooling are very closely interrelated. Duncan has put forward particularly interesting techniques for explaining the relative importance of different factors accounting for social mobility by a technique of path analysis. Most of the sociological discussion is now centred around this technique, and Keyfitz' paper examines some of the major problems.

The observed amount of social mobility will depend a lot on how groups are defined and how big they are. Most studies of social mobility deal with rather broad social groups, and treat all kinds of movement in the same way e.g. the major U.S. study by Blau and Duncan which defines 17 occupational groups. For some purposes a more detailed treatment is desirable in order to analyse the social origins of the top power élite, which is probably less than 1 per cent of the population, and for this purpose specialised studies of social origins of people in particular professions provide a useful supplement to big surveys covering the whole population (3). At the bottom,

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1) P.M. Blau and O.D. Duncan, The American Occupational Structure, Wiley, New York, 1967. pp. 402-3 .

2) For international comparisons of social mobility, see S.M. Miller. "Comparative Social Mobility", Current Sociology, Vol. IX, 1960 .

3) See P. Stanworth and A. Giddens, eds., Elites and Power in British Society, Cambridge, 1974 and A. Sampson, The New Anatomy of Britain, Hodder and Stoughton, London, 1971 for a description of the British ruling group, see also C. Wright Mills, The Power Elite for the U.S.A.

Table 1

Indices of Occupational Association (Father-Son)

	Elite	Middle	Manual
Belgium	17.9	3.3	1.6
Denmark	9.6	1.5	1.3
France I	5.7	1.8	2.3
France II	8.4	1.8	1.6
Germany	11.1	2.0	1.4
Italy	3.9	2.7	1.3
Japan	3.3	2.2	1.2
Netherlands	4.8	2.0	1.2
Sweden	8.1	1.8	1.2
U.K.	6.0	1.4	1.2
U.S.A.	3.3	1.6	1.5

Source: S.M. Miller, *op.cit.* p.54

Table 2

Percentage of Elite Consisting of Sons whose Fathers had a Manual Occupation

	Manual into Elite (percent of élite)	Elite as Percent of Labour Force
Denmark	1.1	(3.3)
France I	3.5	(8.5)
France II	1.6	(6.1)
Germany	1.5	(4.6)
Italy	1.5	(6.6)
Japan	7.0	(11.7)
Netherlands	6.6	(11.1)
Sweden	3.5	(6.7)
U.K.	2.2	(7.5)
U.S.A.	7.8	(16.0)

Source: S.M. Miller *op.cit.*, p.37

it may be desirable to have a grouping which broadly represents the "poor" (1) rather than the Blau-Duncan category of farm labourers which is rather small. This point is mentioned briefly in Halsey's commentary in the Hall-Jones scale, but it may be worth while to raise the issue in discussion at the conference. There is also the problem of overlaps between groups, e.g. some of the people in the top status group may have considerably lower income levels than those in a lower status group, e.g. primary school teachers may earn a good deal less than small businessmen. This point may be particularly worth discussing in a conference in which both economists and sociologists are represented.

The relative size of different social groups is changing over time e.g. the farm sector is declining, the white collar group and the professional groups are increasing and some allowance has to be made for these changes because they mean that each generation faces a different set of possibilities. Unless correction is made it will seem that upward mobility is steadily increasing as the size of the more prestigious social groups rises. However, correction of this type is difficult. Even if the comparison is limited to a ten year age cohort e.g. those aged 45 to 54 in 1970 whose birthdays lie between 1915 and 1925, their fathers' birthdays were spread over at least 50 years, e.g. 1855 to 1905, so it is not possible to adjust the data on fathers' background very accurately to allow for changes in occupational structure. There is also a problem of changes in reporting bias due to snobbery.

The basic measure of degree of social mobility used by sociologists in the 1950s and 1960s (2) is an index of association where actual mobility is compared with what would happen if mobility depended purely on chance. Miller quotes some indices of association which are shown in table 1. An index of 1 indicates perfect mobility, i.e. sons are represented in their father's occupation on a random basis, and a figure over 1 shows that sons are over-represented in their fathers' occupations. The figures are not very comparable between countries but in all countries it is clear that the élite group is the least open. Miller found that social mobility is usually over a short distance and is smallest from working class to élite (even though his élite groups are quite large)-see table 2. The major policy

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1) See M. Harrington, The Other America, 1962, who argues that the poor are a separate class caught in a vicious circle of poverty in a culture of poverty. He distinguishes two nations - like Disraeli. His "poor" consists of 40-50 million people, i.e. bigger than the officially defined group in poverty.

2) See D.V. Glass, Social Mobility in Britain, Routledge, London, 1954. See also K. Svalastoga, Prestige, Class and Mobility, Copenhagen, 1959 and G. Carlsson. Social Mobility and Class Structure, Gleerup, Lund, 1958.

problem for those who want to increase social mobility is therefore to be found in democratising opportunity at the top.

As far as the basic Boudon paradox is concerned, all we can say is that the data are inadequate to prove much but at least one must be sceptical in accepting the old orthodoxy that equalising education will necessarily increase social mobility.

IV. The Impact of Education on Earnings

The impact of educational expansion on earnings differentials is generally supposed to be egalitarian because it creates a bigger supply of educated people who are generally better paid and reduces the supply of the unskilled. However, this expectation has been disappointed in some countries (e.g. the U.S.A.) where the evidence available on earnings by level of education has shown no narrowing in response to the vast growth of education. This has induced various kinds of scepticism about the impact of education on earnings, which is to some extent the economic counterpart to the sociological scepticism about the role of education in social mobility.

There are several problems here. In the first place, the evidence on dispersion of earnings by level of education is poor, and does not show the same situation in all countries. Secondly, and perhaps least noticed, is that educational expansion does not always reduce the education gap between individuals but may well increase it. More equal allocation of educational opportunity may also highten earnings differentials by strengthening the association between education and talent. These facts must be kept in mind before entering into some of the subtleties of recent theorising about the impact of education on earnings (1).

Even if access to education is becoming more equal by social class, this does not mean that the dispersion of educational experience between individuals is necessarily declining. This would be the case if educational expansion took place by successively raising enrolment ratios to 100 per cent for each age group, but expansion has not proceeded this way. Most of the growth of education in the 1960s was at the post-compulsory level where access is still far from universal though it has risen a great deal. Unfortunately, time series on the educational attainment of the population are available for only a few countries, but we can use data on different age cohorts to get

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1) Some of those who expected educational expansion to help the poor did so because they expected it to improve their absolute rather than their relative status. It seems without doubt that massive educational expansion does achieve this objective in the long run.

some idea what has been happening. In all OECD countries the average level of education of people aged 30-34 is considerably higher than that of people aged 75 and over. However, the dispersion in level of education between persons has not changed uniformly. In some cases, dispersion has risen, in some it has fallen and in one case it has been stable. The only cases where expansion of education clearly seems to lead to a reduction of its dispersion is in countries which start from a low level in which there is a good deal of illiteracy - such as Greece, Italy and Portugal. Elsewhere educational expansion may or may not increase equality in the distribution of education between persons. For most countries, the 1970 census results are not yet available, so that we cannot yet measure the impact of the educational expansion of the 1960s, which was much more rapid than in earlier years (1).

No one would argue that the relationship between education and earnings is a simple one, and there are obviously other factors such as intelligence, energy, personal appearance, health, family background, and luck which affect earnings. Furthermore, all the data available make it clear that individuals with a given level of education have a wide dispersion in earnings.

Mincer has recently argued that education in a broad sense, including all on-the-job training and experience, accounts for just over half of the earnings dispersion for white U.S. males (after eliminating variations in the length of the working year). Mincer is a human capital theorist, and the weight he gives to education in explaining earnings probably represents an upper limit although variations in quality of schooling may well be an added source of earnings variations (2). Taubman, who is not unsympathetic to the human capital view, has given a lower estimate of the importance of education than Mincer because he attaches greater significance to variations in intelligence and other basic personality factors (3). Gintis (4) has argued that education has an important impact on earning capacity not primarily because of its cognitive impact but because it produces disciplined behaviour. Berg and Arrow (5) have argued that

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1) The argument of this paragraph is based on the evidence in the Secretariat paper for this seminar on "Inequalities in the Distribution of Education Between Countries, Sexes, Generations and Individuals".

2) See J. Mincer, *Schooling, Experience and Earnings*, Columbia 1974.

3) See P.J. Taubman "Personal Characteristics and the Distribution of Earnings" paper presented to *Royal Economic Society*, Lancaster, July 1974.

4) See H. Gintis, "Education and the Characteristics of Worker Productivity", *American Economic Review*, May 1971.

5) See I. Berg, *Education and Jobs: The Great Training Robbery*, Praeger, New York, 1970, K.J. Arrow, "Higher Education as a Filter", *Journal of Public Economics*, 2, 1973.

the association between earnings and education does not really reflect a contribution of education to output, but that education is used simply as a rather expensive way of labelling people with talent. The Jencks position is the most extreme. He does not say what impact education has on earnings, but he argues that education, I.Q. and family background together explain only 12-15 per cent of earnings. (1)

Thus the economists have been exploring a number of imaginative hypotheses. It is obvious that these questions are not likely to be answered definitively even with much better data than we have now, but better data would obviously help in clarifying some of the issues. The exact impact of education on earnings is probably not too important for policy, but it is obviously important for egalitarians to decide whether education is a major or an insignificant determinant of earnings. It is also important to decide whether the influence of education on earnings is functional or dysfunctional.

V. The Role of Education in the Overall Framework of Equalising Policy Instruments

The Jencks argument is that the existing and potential social impact of education is so limited that equalising policies can only be significantly furthered by other policy weapons. This is a rather extreme position. In the first place he may underrate the actual or potential role of education. This is a point which will probably be elucidated in the course of the discussion of issues I-IV above. Secondly, if we are to judge the relative importance of education in practical terms, it is necessary to analyse the extent to which governments have manifested a real willingness to use other policy instruments, and the obstacles likely to arise in pushing them further.

It is worth looking at the problem under two headings:

a) non educational instruments to promote equality of opportunity;

b) non educational instruments to promote equality.

As far as equality of opportunity is concerned, a few countries still have items of legal hereditary privilege which are probably most important in the U.K., but are generally vestigial. The most important obstacle to equality of opportunity in all other countries is inherited wealth. Most countries have recognised this and imposed death or succession duties, but these taxes have had a relative modest impact. Jencks argues that property inheritance is no longer of much social significance because its average impact on income is small compared with variations in earned income. This is true but misses the point - which is the powerful effect of inheritance on access to élite status.

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1) The Wiles paper for this seminar gives a summary and critique of these various approaches.

If one takes the top 0.1 per cent of wealth holders, Harbury has estimated for the U.K. that a half to two thirds of their wealth is due to inheritance (1). Inheritance may be less important for top wealth-owners in other countries, but it is obviously still very important. Death, gift, and succession duties are therefore a significant item in the agenda of policy weapons for equality of opportunity.

Governments in OECD countries do rather little to influence the primary distribution of income although they have occasionally had so-called incomes policies which are intended to put a temporary freeze on income differentials. The pattern of primary income distribution seems to have been fairly stable for the past decade with no trends towards equalisation (2).

The equalisation instruments are progressive taxation of the rich and government expenditures and transfers in support of the poor.

In OECD countries, taxes now amount to about 35 per cent of GNP on average with a range from 22 per cent in Japan to 50 per cent in Belgium. They constitute a powerful potential weapon for reducing income dispersion if their incidence is progressive. However, the tax burden is progressive only up to a certain level and then tapers off rather sharply, though the situation varies a good deal from country to country, with the most progressive taxes being levied in Scandinavia.

The tax with the biggest effect on income distribution is usually income tax but this provides less than half of government revenue in most OECD countries. It is clear from recent studies by the Brookings Institution and by Lester Thurow that in the U.S.A. the actual incidence of income tax is not nearly so progressive as it is theoretically, particularly for the very rich who enjoy large deductions and exemptions (3). This seems to be the case in a number of other OECD countries. The most rapidly growing taxes are those for social security and indirect taxes which are either regressive or neutral in their impact. The net progressivity of the tax system has therefore tended to fall over the past two decades. The equalisation role of taxation is very unevenly exploited in OECD countries; with taxes taking

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1) See G.D. Harbury and P.C. McMahon, "Inheritance and the Characteristics of Top Wealth Leavers in Britain", Economic Journal, September 1973, p. 832.

2) The situation in the U.S.A. is described in chapter 5 of the Economic Report of the President, Washington 1974, see also the seminar paper on Inequality in the Distribution of Personal Income.

3) See J.A. Pechman, "The Rich, the Poor, and the Taxes They Pay", Public Interest, Fall 1969.

perhaps 70 per cent of top incomes in Norway and Sweden and perhaps 15 per cent in Southern Europe.

Lester Thurow has produced an interesting table for the U.S.A. which shows that those with incomes over $1 million a year (admittedly not a large section of the population) can more or less choose what tax rates they wish to pay (1). The situation varies a good deal from country to country, but it is obvious that the possibilities of tax avoidance by the rich are considerable. The U.K. situation has been examined by Titmuss, the possibilities have been demonstrated practically in Denmark by Glistrup, and some possibilities appear to exist even in Sweden (2).

As Thurow argues: "the sharp distinction between nominal and actual rates, however, raises doubts about the actual tax structure being the desired tax structure. If society wants a tax structure that is not very progressive and that is regressive at the top, why did it not legislate a tax structure under which the nominal and actual tax rates are similar if not identical? Why hide actual effective tax rates behind high nominal tax rates?"

There will obviously be a point at which progressive taxation will eventually check incentives and slow down economic growth. This point is raised in Lindbeck's paper which deals with the situation in a country where taxation is much more progressive than in most OECD countries.

Real income and welfare can be strongly influenced by government spending. Part of government expenditure goes to items like defence, police or subsidies to industries whose benefits cannot easily be attributed to a particular group of the population. The rest is of a social character and goes mainly on health, education, housing and social security benefits whose impact can in theory be assessed but not always in practice.

In the case of education, over half of public spending in OECD countries is on the non-compulsory sector, where the facilities tend to be used by the upper income groups. There are a number of studies of the distribution of the benefits of education by social class or income group (3) and it is clear

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1) See L.C. Thurow, The Impact of Taxes on the American Economy, Praeger, New York, 1971.

2) See E. Oscarsson, Hur Man Undgår Skatt i Sverige, Kristall, Malmo, 1973.

3) See W. Lee Hansen and B.A. Weisbrod, Benefits, Costs and Finance of Public Higher Education, Markham, Chicago, 1969; R.W. Judy, On the Income Redistributive Effects of Public Aid to Higher Education in Canada, Institute for the Quantitative Analysis of Social and Economic Policy, University of Toronto, 1969, Y. Horrière and P. Petit, Les Effets Redistributifs de l'Enseignement Supèrieur, CEPREMAP, 1972.

that the impact of present financing systems is often regressive. This has sparked off a lively debate on the possibilities for redressing this by changed policies for educational finance (see Maureen Woodhall's paper for the seminar). However, such policies for educational finance have to be seen in the broad fiscal context (including all forms of taxation) before their appropriateness for any particular situation can be judged.

As far as health is concerned, the impact of government policy is generally compensatory in the sense that the benefits are felt mainly by those who are ill, and at the higher income levels, people tend to use private services, but the impact of public health expenditure is not generally very strongly compensatory in its effect by income group and there are still sizable differences in life expectation by social class (1). The same is true, by and large, of the impact of government housing expenditure, if one takes account of the whole range of public subsidisation of housing including direct subsidies, tax privileges for mortgages, rent controls etc.

The most powerful redistributive element in governmental activity is social security transfer payments, whose main impact is to reduce poverty, though that was not necessarily the original aim of such schemes. These systems arose for a number of reasons. Some of them are a form of insurance which to some extent has displaced private mechanisms which existed or might have developed - and their main impact is to transfer income over the life cycle. Some have been developed for nationalistic reasons, e.g. the large French family allowances are intended to stimulate population growth. The idea of poverty relief was at first only a marginal element in such systems, though it has grown very rapidly as countries have grown more affluent and generous. There are very complicated problems in administering these schemes which have led to problems of lumpy tax incidence and other problems of perverse incentives. At times, the requirements for benefits have almost seemed to create poverty. Sweden and Norway have both had low incomes commissions to investigate the causes of poverty and in both the U.K. and U.S.A. there has been intensive public discussion of the possibilities of simplifying social security by abolition of particular schemes and introduction of a general system of income maintenance or negative income tax (2). These problems have been investigated in some detail in OECD countries and it is not proposed to discuss them at great length here (3).

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1) See A.H. Halsey ed., *Trends in British Society since 1900*, Macmillan, London, 1972, p. 341 which shows a big decline in the differential since 1910.

2) See D.P. Moynihan, *The Politics of a Guaranteed Income*, Vintage New York, 1973 and G.C. Fiegehen and P.S. Lansley, The Tax-Credit Proposals", *National Institute Economic Review*, May 1973.

3) See "Income Maintenance Expenditures in Selected Countries 1962 and 1972" mimeograph, OECD, Paris 1974, *Negative Income Taxes*, OECD, 1974, and "Some Notes on Income Maintenance", mimeographed, OECD, Paris 1972.

Efforts to measure the overall impact of government taxes and expenditure have been carried out by several authors. A pioneer in this field was Irving Gillespie. Official articles in Economic Trends in the U.K. have followed a similar pattern though they have not tried to allocate the benefits of all government expenditure.

Unfortunately it is not easy to compare the overall impact of government distributive activity in different countries as the studies have been made with varying definitions of income and different degrees of detail in specification of different groups. Gillespie's analysis dealt with fairly broad groups, his top group included all those with family incomes above $10,000 in 1960 (i.e. 14 per cent of all families).

Gillespie shows that U.S. Government fiscal activity in 1960 reduced the spread in income between his top and bottom categories (both representing 14 per cent of families) from 16: 1 to 9: 1 and Economic Trends shows a reduction between the top (13 per cent) and bottom (18 per cent) in the U.K. from 40: 1 to 6: 1. This is a much bigger reduction but it seems that Gillespie included pensions in his original income whereas Economic Trends did not (1).

It would obviously be interesting to try to develop and refine such comparisons further to compare the net impact of fiscal intervention in a few countries. So far this is a field of international comparison in which little work appears to have been done. In the meantime, it would seem reasonable to conclude that educational policies may be fairly important in the present rather weak array of policy weapons to promote egalitarian goals in OECD countries.

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1) See W.I. Gillespie, "Effect of Public Expenditure on the Distribution of Income", in R.A. Musgrave, ed., Essays in Fiscal Federalism, Brookings, Washington D.C. and Economic Trends, London, November 1972.

Inequalities in the Distribution of Education Between Countries, Sexes, Generations and Individuals(1)

This paper shows how educational experience is distributed in O.E.C.D. countries. It covers those of the population who have terminated formal education. The measure of educational attainment used is duration of formal education in years.

The estimates are broken down by sex and by age cohort, so that differences in education between men and women and between generations can be measured. They also show the dispersion in educational levels between persons and trends in the level of educational attainment over time.

The assessment is based on national censuses and surveys for nineteen O.E.C.D. countries. The census data for four countries, Australia, Austria, Iceland and Switzerland are insufficiently detailed to be included in the analysis. In 1950 only six countries made detailed surveys - Canada, Finland, Italy, Norway, the U.K. and the U.S.A. In the 1960 round, fourteen O.E.C.D. countries collected information and from the 1970 round, data will be available for most O.E.C.D. countries, though so far results for only twelve countries had appeared at the time of writing - Australia (partial 1971), Austria (1971), Canada (1971), Finland (1970), France (1968), Germany (1970), Greece (1971), Italy (partial 1971), Japan (1970), Spain (1970), Sweden (1970), U.S.A. (1970). For Ireland and New Zealand, data were available for 1966, and for Turkey for 1965. Until the 1970 census results are available for all countries, the intercountry comparisons suffer from the fact that they are not for the same year.

The basic information was not in the same form in each country. The disaggregation by number of years of education was not always complete and some countries show figures only for rather broad age cohorts. In eleven of the nineteen countries the census information refers to the final level of qualification received. This was transformed into equivalent years of education with the help of information concerning the average length of study currently required for various qualifications, and where appropriate, with historical data relating to the duration of compulsory schooling. In countries where there is a high level of grade repeating and drop-out, adjustments were made to allow for this. Allowances were made to ensure symmetric treatment of illiterates in different countries.

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1) This paper was prepared by Marilyn Kotwal, consultant to O.E.C.D.

These procedures are described in the country notes in Appendix 1.

The measure used here refers only to years of "regular" schooling. Some training which contributes to the betterment of the knowledge and skills of individuals, and hence to their productivity, such as that obtained on-the-job, during military service, through commercial courses and informal educational classes, is not included. In the U.S.A. and Canada an attempt was made in the 1970 census round to collect data on training (as opposed to educational) experience, but the data were not considered reliable. The omission of training is regrettable because the little evidence there is suggests that it is an important part of the total educational stock (1). Pre-primary education has been similarly ignored in the estimates, despite the fact that it is a significant part of the educational stock in some countries, such as France and Belgium (2). Our feeling is that these omissions probably lead to understatement of educational inequality, because the education omitted is probably more unequally distributed than that which is included.

A bias of unknown size and direction may arise through under-reporting and over-reporting of years of schooling. The reliability of the basic information depends on the memory of census respondents about events which may have occurred several decades earlier. For the U.S.A., Folger and Nam (3) concluded that the net bias due to this was probably very small. However, in Sweden, the authorities have decided that people aged 60 and over report their educational attainments too inaccurately to warrant asking them for information. The only alternative to askings members of the population about their education is to make cumulative estimates from enrolment data over a period of several decades. This is an impossible undertaking in most countries, because of the poor quality of the older enrolment data, and in

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1) J. Mincer, in "On-the-Job Training: Costs, Returns and some Implications", Journal of Political Economy, Supplement, October 1962, presented estimates for the U.S.A. which suggested that annual human capital investment in general on-the-job training for the male U.S. labour force was roughly equivalent to that in formal education. However, Mincer's estimates include the value of experience. The O.E.C.D. is currently trying to improve estimates in the scope of "adult" education and training, and will shortly publish a study with statistics on participation in adult education in twelve countries.

2) The most comprehensive definition of education is that of F. Machlup, The Production and Distribution of Knowledge in the United States, Princeton, 1962, who includes mother's knee learning, and some religious activities as well.

3) See J.K. Folger and C.B. Nam, Education of the American Population, U.S. Bureau of the Census, Washington D.C. 1967.

countries with large migration the coverage would be only partial. This perpetual inventory method has been used only in France to our knowledge. Another problem in countries where people are asked how many years of schooling they have had is that some of them may possibly have included nursery schooling. However we have assumed that this is not the case.

A considerable effort was made to ensure that the data are as comparable as possible internationally and intertemporally, but it is impossible to make serious adjustments for variations in quality. There is some information on variations in educational inputs which could affect quality, such as variations in weekly hours of schooling, school holidays, truancy, incidence of homework, inputs of teacher time per pupil etc. but there is no clear evidence to suggest what impact such variations have on school "output" even if the data were available in comparable form. The I.E.A. studies have come closest to measuring variations in standards of cognitive achievement between countries, but they are available only for the secondary level.

The stock of education (measured in years) is shown in tables 1-4 below. Table 1 shows the variation between countries in educational levels for all countries for which estimates are available. Taking 1960 or 1961 as the period for which most estimates are available, the overall figures varied from 10.2 years of education in the U.S.A., to only 2.7 years in Portugal for the same age-group, i.e. a ratio of almost 4:1. However the intercountry gap was much wider in higher education, where the U.S. per capita advantage over Portugal was 11:1.

Table 2 shows the difference in educational levels between males and females aged 15 or more in O.E.C.D. countries. In all countries, except Canada, Ireland and the Netherlands, men have more education than women. However it should be noted that the difference between male and female education is most striking in higher education. At the primary level only the countries of Southern Europe show a significant difference between the sexes. Women in Canada, the Netherlands, the U.S.A., and more particularly in Ireland, have slightly more secondary education than men. The male advantage at the secondary level is greatest in Denmark, Italy, Germany, Greece, Japan and Turkey. At the higher level, while the difference between the sexes in terms of years is small, men have four times as much higher education as women in Spain and Turkey, three times as much in Germany, Italy, Japan, Norway and Portugal, and twice as much in Belgium, Canada, Denmark and Greece. The smallest difference shown in the table is for the Netherlands. However these data refer to the active population and reflect the higher activity rates of women with higher education.

Table 3 shows the difference in education level between generations i.e. between those aged 55-64 and 30-34. In all cases the younger generation is more favoured. At the primary level and over all the greatest difference is in Greece. The greatest gap at the secondary level is in Japan, but in several countries the younger generation has more than twice as much secondary education as the older generation. At the higher level, the widest generation gaps are in the U.S.A., France, Sweden and Japan. The smallest generation gap is in Germany where it is only 0.4 years.

Table 4 shows the dispersion in educational levels between individuals in different countries. The particular measure which is shown here is the Gini coefficient. It can be seen from table 4 that inequality is highest in Southern Europe where illiteracy is still prevalent and lowest in the U.K., Ireland, Norway and New Zealand. For those wishing to make other types of comparison of dispersion amongst individuals table 5 shows average levels of education by quantiles of the population. The U.S.A. and Japan are the only countries which have time series available to measure trends in inequality, but the trend in other countries can be gauged by comparing the situation for older and younger age groups. It can be seen from the Gini coefficients in table 4 that there has been a decline in inequality of education in ten countries (a lowering of the Gini coefficient) a rise in inequality in eight countries and no change in Belgium. The rate at which inequality has diminished has been very sharp in countries which are eliminating illiteracy, but falls off sharply or becomes negative in countries with high levels of education.

Unfortunately, the comparability of the country data in table 5 is impaired by the fact that countries have different cut-off points when collecting census data on educational attainment . The cut-off points are shown in table 6. In Denmark, Germany and Norway the lower cut-off point is seven years, which means that everyone was assumed to have had at least seven years' education. This is probably not far from the truth for the vast majority of citizens of these countries, which have had compulsory education of at least this length for almost a century, but there are some people who did not go to school for as long as seven years (particularly amongst immigrants) and they are all classified as if they had at least seven years schooling. In eight countries there is no lower limit on the assumed level of schooling, and in some of these, e.g. Canada and the U.S.A., it is noteworthy that the bottom 10 per cent appear to have much less schooling than they do in countries with a high minimum assumption. The problem also arises in the upward direction where all countries have set a maximum limit which varies from seventeen in Portugal to twenty-four in France.

The figures presented in tables 1-5 understate the importance of variance in levels of education between countries, sexes, generations and persons because they do not differentiate between the value or cost of education at different levels. This is well illustrated by tables 7 and 8. Table 7 shows the direct current cost of a year of primary, secondary and higher education in 1970 in three O.E.C.D. countries for which a special inquiry has recently been made. In Japan, where the differentials are smallest, a year of higher education cost well over twice as much as a year of primary education. In the U.K. a year of higher education cost about nine times as much as a year of primary education. In France, the position lay between that in the U.K. and Japan. These differences in cost become even greater if allowance is made for costs arising from the fact that students in higher education have to forego wages which they could earn by working, whereas primary school students have no such opportunities.

Thus for some purposes it would be useful to weight years of education at different levels by their relative cost in order to get a better picture of the way different people have invested in "human capital". If we measure average years of education in the U.K. for those aged 25-64 in terms of "equivalent years" of primary education the total figure of 9.8 years in table 1 rises to 18.8 years (including earnings foregone). Similarly, the Japanese figure of 10.0 years in table 1 would rise to 17.5 years if weighted by Japanese costs (including earnings foregone), and the French figure in table 1 of 9.1 years would rise to 19.6 years using French weights. The gaps between the sexes, generations and individuals would all be bigger in terms of these weighted comparisons than when measured in simple terms of years of education. This is because in all cases the weights given to the most unequally distributed education, i.e. secondary and higher, are much bigger.

The same is true of comparisons made when the stock of "educational capital" is weighted by the earnings differentials of people with different levels of education. It can be seen from table 8 which presents data on the situation in ten O.E.C.D. countries that there is a systematic tendency in all countries for those with secondary education to earn more than those with primary education, and for those with higher education to earn more than those with secondary education (1).

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1) Some authors, e.g. E.F. Denison, Why Growth Rates Differ, Brookings, Washington, 1967, have made estimates of the stock of educational capital using earnings weights. However, it is extremely difficult to decide what part of earnings is due to formal education, particularly if there are no data on post-formal education and training. Those who wish to do so, can easily use the present data to construct earnings-weighted estimates, if they find suitable earnings weights.

Growth of Educational Attainment over Time

In most cases, time series are not available on levels of attainment, but trend estimates can be derived from cohort analysis and exploitation of recent enrolment data. Unless age cohorts are affected in a major way by death or migration, reasonably reliable estimates are feasible by backward or forward extrapolation of data for those of the population who would have already left formal education in both years under consideration. Thus for 1950, the education of the population aged 25-34 can be estimated where necessary by using data for the group aged 35-44 in 1960. In extrapolating to 1970 and 1980, use can be made of enrolment data. Education received by the age-cohort 25-34 in 1980 was derived by linear interpolation between the level of educational attainment as shown for the 25-34 year olds in the latest census available and that implied by current data on enrolment in education by the relevant age-group. Population in 1980 in each age-cohort was taken from projections provided by individual countries to the Manpower Committee of O.E.C.D. (1). This method is shown to be fairly accurate by the proximity of the projections derived using the cohort technique to estimates obtained directly from census data for 1970.

Estimates of the growth of the educational stock are shown in tables 9-11 for the period 1950-1980. It can be seen that the rate of increase in the stock of education accelerated from 0.8 per cent a year growth in the 1950s to 1.1 per cent a year to be expected in the 1970s. The acceleration in the weighted stock would be considerably greater than this because the acceleration was biggest in the most expensive form of education, i.e. higher education where the rise averaged 2.1 per cent a year in the 1950s and will average 5.7 per cent in the 1970s.

The distributive effects of this rapid acceleration in education will obviously be substantial and will probably be equalising in most respects. The expansion of per capita levels of education has been greatest in Southern Europe, so that the intercountry gaps have probably been reduced. Education for girls has expanded faster than for boys, so the sex gaps may be in course of reduction. However, it is conceivable that the accelerated growth of education may have widened the generation gap. Unfortunately we do not have enough data to know what has happened to the gap between individuals.

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1) See Demographic Trends 1970-1985, O.E.C.D. Paris 1974.

It would seem that the following general conclusions can be drawn from the data:

a) the range between O.E.C.D. countries in per capita stock of education is very wide, but there is some tendency to convergence. The levels in Northern Europe are fairly closely bunched, and Southern Europe is making the most rapid progress;

b) inequality between males and females is still important in some O.E.C.D. countries, but inequalities are probably tending to diminish over time;

c) the generation gap may have been widened by the rapid acceleration of educational enrolment in recent years;

d) inequality between persons is very big, and the process of educational expansion is not always equalising, particularly once countries get past the stage where illiteracy is abolished;

e) in the next round of censuses or surveys, a good deal could be done to improve the international comparability of the data as far as cut-off points are concerned, as far as type of education is concerned, and as far as definition of educational level is concerned.

Table 1

Educational Experience of Population Aged 25-64 by Level of Education

			Average Years of Education		
		Total	Primary	Secondary	Higher
Belgium(a)	1961	9.2	6.0	2.9	0.31
Canada	1951	8.6	5.6	2.8	0.16
Canada	1961	9.1	5.7	3.2	0.20
Canada	1971	9.7	5.8	3.7	0.31
Denmark(a)	1961/2	9.0	5.0	3.8	0.20
Finland	1970	8.4	5.9	2.3	0.22
France	1968	9.1	5.0	3.8	0.35
Germany	1970	9.2	4.0	5.1	0.18
Greece	1961	4.8	4.0	0.8	0.10
Greece	1971	5.9	4.5	1.2	0.21
Ireland	1966	9.4	6.0	3.0	0.37
Italy	1961	5.6	4.0	1.4	0.13
Japan	1960	9.0	6.0	2.8	0.22
Japan	1970	10.0	6.0	3.6	0.35
Netherlands(b)	1960	8.1	6.0	1.8	0.26
New Zealand	1966	9.9	7.9	1.7	0.24
Norway	1960	8.2	7.0	1.0	0.18
Portugal	1960	2.7	2.1	0.6	0.05
Spain	1970	5.8	5.1	0.5	0.16
Sweden(c)	1970	8.7	6.0	2.5	0.28
Turkey(a)	1965	3.0	2.4	0.5	0.07
United Kingdom(d)	1951	9.5	6.0	3.3	0.13
United Kingdom	1961	9.8	6.0	3.6	0.17
United States	1950	9.5	5.6	3.4	0.45
United States	1960	10.2	5.8	3.9	0.56
United States	1970	11.4	5.8	4.5	0.76

(a) Age group 20-59
(b) Active population
(c) Age group 25-59
(d) Excluding Northern Ireland

Table 2

Educational Experience of Males and Females Aged 15 and Over

Average Years of Education

		Primary			Secondary			Higher		
		Males	Females	Male Advantage	Males	Females	Male Advantage	Males	Females	Male Advantage
Belgium(a)	1961	6.0	6.0	0.0	2.7	2.5	0.2	0.36	0.15	0.21
Canada	1971	5.7	5.8	-0.1	3.6	3.7	-0.1	0.32	0.15	0.17
Denmark	1961/2	5.0	5.0	0.0	4.1	3.4	0.7	0.22	0.11	0.11
Finland(b)	1970	5.9	5.9	0.0	2.1	2.0	0.1	0.27	0.15	0.12
France	1968	5.0	5.0	0.0	3.8	3.6	0.2	0.36	0.19	0.17
Germany(c)	1970	4.0	4.0	0.0	5.0	4.6	0.4	0.21	0.07	0.14
Greece	1971	4.9	4.0	0.9	1.4	1.0	0.4	0.25	0.11	0.14
Ireland	1966	6.0	6.0	0.0	2.8	3.1	-0.3	0.32	0.27	0.05
Italy(a)	1961	4.2	3.9	0.3	1.7	1.2	0.5	0.17	0.05	0.12
Japan	1970	6.0	5.9	0.1	3.9	3.5	0.4	0.45	0.14	0.31
Netherlands(d)	1960	6.0	6.0	0.0	1.6	1.7	-0.1	0.21	0.20	0.01
New Zealand	1966	7.9	7.9	0.0	1.8	1.7	0.1	0.29	0.15	0.14
Norway	1960	7.0	7.0	0.0	1.1	0.8	0.3	0.22	0.07	0.15
Portugal	1960	2.5	2.0	0.5	0.8	0.5	0.3	0.06	0.02	0.04
Spain	1970	5.2	4.7	0.5	0.6	0.4	0.2	0.21	0.05	0.16
Sweden(e)	1970	6.0	6.0	0.0	2.9	2.7	0.2	0.30	0.18	0.12
Turkey(f)	1965	3.2	1.8	1.4	0.6	0.2	0.4	0.08	0.02	0.06
United Kingdom	1961	6.0	6.0	0.0	3.6	3.6	0.0	0.18	0.10	0.08
United States	1970	5.8	5.8	0.0	4.2	4.3	-0.1	0.72	0.51	0.21

(a) Aged 14 and over

(b) Aged 25 and over

(c) Total having left school

(d) Active population

(e) Aged 15-59

(f) Aged 11 and over

Table 3

Intergenerational Differences in Educational Experience

Average Years of Education

		Primary			Secondary			Higher		
		30-34 olds	55-64 olds	Advantage of younger generation	30-34 olds	55-64 olds	Advantage of younger generation	30-34 olds	55-64 olds	Advantage of younger generation
Belgium(a)	1961	6.0	6.0	0.0	3.3	2.3	1.0	0.37	0.23	0.14
Canada(b)	1971	5.9	5.7	0.2	4.4	3.1	1.3	0.43	0.23	0.20
Denmark (c)	1961/2	5.0	5.0	0.0	3.8	3.5	0.3	0.26	0.12	0.14
Finland	1970	6.0	5.8	0.2	3.1	1.2	1.9	0.32	0.14	0.18
France	1968	5.0	5.0	0.0	4.4	3.0	1.4	0.49	0.18	0.31
Germany	1970	4.0	4.0	0.0	5.1	4.8	0.3	0.20	0.13	0.07
Greece(d)	1971	5.6	3.8	1.8	2.1	0.7	1.4	0.31	0.15	0.16
Ireland	1966	6.0	6.0	0.0	3.2	2.8	0.4	0.45	0.29	0.16
Italy	1961	4.3	3.6	0.7	1.8	1.0	0.8	0.17	0.09	0.08
Japan	1970	6.0	6.0	0.0	4.5	2.2	2.3	0.44	0.20	0.24
Netherlands(e)	1960	6.0	6.0	0.0	2.2	1.1	1.1	0.28	0.22	0.06
New Zealand(f)	1966	8.0	7.9	0.1	2.0	1.3	0.7	0.29	0.19	0.10
Norway(c)	1960	7.0	7.0	0.0	1.1	0.6	0.5	0.11	0.04	0.07
Portugal	1960	2.5	1.6	0.9	0.8	0.4	0.4	0.06	0.04	0.02
Spain	1970	5.3	4.6	0.7	0.7	0.4	0.3	0.19	0.12	0.07
Sweden (g)	1970	6.0	6.0	0.0	3.1	1.5	1.6	0.40	0.15	0.25
Turkey(c)	1965	2.4	1.6	0.8	0.4	0.3	0.1	0.07	0.05	0.02
United Kingdom	1961	6.0	6.0	0.0	3.8	3.2	0.6	0.23	0.12	0.11
United States	1970	5.9	5.7	0.2	5.0	3.7	1.3	0.91	0.54	0.37

Age groups:
(a) 20-39
(b) 25-34, 45-54
(c) 30-39, 50-59
(d) 25-29, 45-64
(e) 25-34
(f) 25-44, 45-64
(g) 55-59

Table 4

Variations in levels of education between persons - Gini coefficients

(education measured in years of experience)

		Males Aged			Females Aged			Both Sexes Aged		
		30-34	55-64	15+	30-34	55-64	15+	30-34	55-64	15+
Belgium(a)(b)	1961	0.14	0.14	0.16	0.14	0.12	0.12	0.13	0.13	0.13
Canada(c)	1971	0.17	0.22	0.21	0.14	0.20	0.18	0.16	0.21	0.19
Denmark(d)	1961/2	0.15	0.13	0.13	0.13	0.11	0.13	0.14	0.12	0.13
Finland(e)	1970	0.16	0.17	0.18	0.14	0.16	0.17	0.15	0.16	0.18
France	1968	0.15	0.14	0.15	0.13	0.11	0.13	0.14	0.12	0.14
Germany	1970	0.14	0.14	0.14	0.12	0.10	0.12	0.13	0.12	0.12
Greece(f)	1971	0.23	0.35	0.32	0.25	0.46	0.41	0.24	0.41	0.36
Ireland	1966	0.13	0.10	0.10	0.12	0.10	0.10	0.11	0.10	0.10
Italy(b)	1961	0.28	0.36	0.31	0.29	0.37	0.32	0.29	0.37	0.31
Japan	1970	0.12	0.15	0.15	0.09	0.14	0.14	0.11	0.15	0.15
Netherlands(g)	1960	0.15	0.14	0.16	0.15	0.17	0.14	0.16	0.14	0.15
New Zealand(h)	1966	0.11	0.11	0.11	0.09	0.10	0.10	0.10	0.11	0.11
Norway(c)	1960	0.12	0.10	0.11	0.10	0.06	0.08	0.11	0.08	0.10
Portugal	1960	0.42	0.58	0.45	0.48	0.69	0.54	0.46	0.64	0.50
Spain	1970	0.23	0.26	0.24	0.22	0.33	0.27	0.23	0.30	0.26
Sweden(j)	1970	0.17	0.17	0.17	0.15	0.14	0.16	0.16	0.15	0.16
Turkey(k)	1965	0.43	0.57	0.43	0.65	0.67	0.62	0.55	0.65	0.53

Table 4 (cont'd)

		Males Aged			Females Aged			Both Sexes Aged		
		30-34	55-64	15+	30-34	55-64	15+	30-34	55-64	15+
United Kingdom	1961	0.09	0.08	0.08	0.07	0.07	0.08	0.08	0.07	0.08
United States	1970	0.15	0.21	0.17	0.12	0.19	0.16	0.13	0.20	0.17

(a) Age groups 20-39, 40-59
(b) Aged 14 and over
(c) Age groups 25-34, 45-54
(d) Age groups 30-39, 50-59
(e) Aged 25 and over
(f) Age groups 25-29, 45-64
(g) Age groups 25-34, active population
(h) Age groups 25-44, 45-64
(j) Age groups 55-59
(k) Aged 11 and over

N.B. The Gini coefficient is 0 when there is complete equality and 1 when all the education is concentrated on one person. The lower the figure, the more equality there is.

Table 5

Average Levels of Education of Selected Quantiles of the population aged 15 and over

per capita level of education in years

		Bottom 5%	Bottom 10%	Bottom 20%	Bottom 30%	Bottom 40%	Bottom 50%
Belgium (a)	1961	6.3	6.7	6.8	6.9	7.1	7.3
Canada	1971	2.1	3.4	4.8	5.8	6.4	7.0
Denmark	1961/2	7.0	7.0	7.0	7.0	7.0	7.1
Finland (b)	1970	5.0	5.0	5.4	5.6	5.8	6.1
France	1968	5.3	6.2	6.6	6.8	7.1	7.3
Germany	1970	7.0	7.0	7.0	7.0	7.3	7.4
Greece	1971	0.0	0.2	0.8	1.6	2.3	3.0
Ireland	1966	7.0	7.5	7.8	7.8	7.9	7.9
Italy (a)	1961	0.1	0.6	1.4	2.1	2.6	3.2
Japan	1970	5.0	5.5	6.6	7.1	7.4	7.7
Netherlands(c)	1960	6.0	6.0	6.0	6.0	6.0	6.0
New Zealand	1966	6.6	7.3	7.6	7.9	8.2	8.4
Norway	1960	7.0	7.0	7.0	7.0	7.0	7.0
Portugal	1960	0.0	0.0	0.0	0.0	0.2	0.8
Spain	1970	0.0	0.0	1.0	2.4	3.3	3.9
Sweden (d)	1970	5.8	5.9	5.9	6.3	6.5	6.8
Turkey (e)	1965	0.0	0.0	0.0	0.2	0.4	0.5
U.K.	1961	7.3	7.7	8.3	8.6	8.7	8.7
U.S.A.	1970	2.4	4.1	5.9	6.7	7.4	8.1

(a) Total 14 and over
(b) Total aged 25 and over
(c) Active population
(d) Total aged 16-59
(e) Total aged 11 and over

Table 5 (contd)

		Top 40%	Top 30%	Top 20%	Top 10%	Top 5%
Belgium (a)	1961	11.0	11.8	12.9	14.5	16.3
Canada	1971	12.7	13.3	14.0	15.6	17.2
Denmark	1961/2	11.1	11.6	12.4	13.6	15.1
Finland (b)	1970	10.7	11.5	12.6	14.1	15.9
France	1968	11.2	12.2	13.2	14.9	16.9
Germany	1970	11.0	11.7	12.6	14.3	15.8
Greece	1971	9.5	10.5	12.2	13.8	14.9
Ireland	1966	11.1	11.7	12.5	13.8	15.5
Italy (a)	1961	8.4	9.2	10.6	13.0	15.1
Japan	1970	12.6	13.0	13.6	15.1	16.2
Netherlands (c)	1960	10.3	10.7	11.6	14.0	15.9
New Zealand	1966	11.8	12.4	13.0	14.2	15.3
Norway	1960	9.7	10.2	11.1	12.7	14.9
Portugal	1960	5.5	6.1	6.6	8.2	10.4
Spain	1970	7.6	8.1	9.2	11.7	14.5
Sweden (d)	1970	11.7	12.3	13.0	14.3	15.6
Turkey (e)	1965	6.2	6.6	7.4	9.2	11.1
U.K.	1961	11.2	11.6	12.4	14.0	15.8
U.S.A.	1970	13.5	14.0	15.0	16.4	17.1

(a) Total 14 and over

(b) Total aged 25 and over

(c) Active population

(d) Total aged 16-59

(e) Total aged 11 and over

Table 6

Cut-Off Points Used in Census Accounting of Educational Experience

		Least number of per capita years of schooling recorded	Highest number per capita years of schooling recorded
Belgium	1961	6	19
Canada	1971	0	19
Denmark	1961/2	7	19
Finland	1970	5	20
France	1968	3	24
Germany	1970	7	19
Greece	1971	0	18
Ireland	1966	6	19
Italy	1961	0	20
Japan	1970	0	19
Netherlands	1960	6	18
New Zealand	1966	1	20
Norway	1960	7	20
Portugal	1960	0	17
Spain	1970	0	22
Sweden	1970	5	22
Turkey	1965	0	18
U.K.	1961	6	20
U.S.A.	1970	0	18

Table 7

Direct Current Cost of a Pupil Year of Education at Different Levels in Public Institutions

1970 U.S. $ per pupil year

	France	Japan [(a)]	U.K. [(b)]
Primary	282	238	223
First cycle secondary	330	265	372
Second cycle secondary	606	316	972
Higher	691	549	2,136

(a) Estimates cover average costs in both public and private institutions.

(b) Estimates for first and second cycle secondary levels refer to pre- and post-compulsory secondary education respectively.

Source: L. Levy-Garboua, S. Newman, T. Noda, A. Peacock, T. Watanabe and M. Woodhall, Educational Expenditure in France, Japan and the U.K., O.E.C.D., Paris, forthcoming.

Table 8

Index of Average Annual Earnings of Labour by Level of Education in O.E.C.D. Countries

Country	Year	Educational Level		
		Primary	Secondary	Higher
Belgium	1960	100	251	502
Canada	1961	100	144	263
France	1968	100	183	289
Greece	1960	100	139	220
Italy	1969	100	141	244
Japan	1968	100	117	161
Netherlands	1965	100	131	152
Norway	1966	100	140	213
U.S.A.	1967	100	129	200
U.K.	1967	100	140	225

Source: G. Psacharopoulos, Earnings and Education in O.E.C.D Countries, O.E.C.D., Paris, 1975.

Table 9

Estimated Change in Average Per Capita Educational Attainment of the Population aged 25-64 between 1950-1960

		Average annual compound growth rate in:			
		Total	Primary	Secondary	Higher
Belgium (a)	1951-61	0.6	0.0	1.7	2.6
Canada	1951-61	0.6	0.1	1.4	2.3
Denmark	1951-61	0.3	0.0	0.4	1.1
France	1948-58	0.5	0.0	1.0	3.2
Greece	1951-61	2.2	1.7	4.2	5.2
Italy	1951-61	1.1	0.8	2.0	0.8
Japan	1950-60	1.1	0.2	3.0	3.2
Netherlands	1950-60	0.4	0.0	1.9	0.4
Norway (b)	1950-60	0.3	0.0	2.2	1.2
Portugal	1950-60	1.8	1.7	2.5	0.0
United Kingdom (c)	1951-61	0.3	0.0	0.8	2.7
United States	1950-60	0.8	0.3	1.4	2.2
Average		0.8	0.4	1.9	2.1

(a) Age group 20-59

(b) Age group 25-59

(c) Excluding Northern Ireland

Table 10

Estimated Change in Average Per Capita Educational Attainment of the Population aged 25-64 between 1960-1970

		Average annual compound growth rate in :			
		Total	Primary	Secondary	Higher
Belgium (a)	1961-71	0.8	0.0	1.8	4.7
Canada	1961-71	0.7	0.2	1.4	4.5
Denmark (a)	1961-71	0.5	0.0	0.8	6.1
Finland	1960-70	1.0	0.1	3.4	3.2
France	1958-68	0.6	0.0	1.3	3.1
Germany	1960-70	0.5	0.0	0.9	2.5
Greece	1961-71	2.2	1.4	4.5	7.7
Ireland	1956-66	0.2	0.0	0.5	1.8
Italy	1961-71	1.4	0.6	3.2	3.9
Japan	1960-70	1.1	0.0	2.7	4.8
Netherlands	1960-70	0.7	0.0	2.4	2.7
Norway (b)	1960-70	0.6	0.0	3.3	4.9
Portugal	1960-70	2.8	1.7	6.1	11.6
Spain	1960-70	0.8	0.6	2.3	2.1
Turkey (a)	1955-65	2.3	2.1	3.3	1.5
U.K. (c)	1961-71	0.4	0.0	0.9	3.1
U.S.A.	1960-70	0.9	0.2	1.5	3.1
Average		1.0	0.4	2.4	4.1

(a) Age group 20-59

(b) Age group 25-59

(c) Excluding Northern Ireland

Table 11

Estimated Change in Average Per Capita Educational Attainment of the Total Population aged 25-64 between 1970-1980

		Average annual compound growth rate in :			
		Total	Primary	Secondary	Higher
Belgium (a)	1971-81	0.9	0.0	1.6	4.8
Canada	1971-81	1.0	0.2	1.8	5.3
Denmark (a)	1971-81	0.6	0.0	0.8	4.9
France	1968-78	1.0	0.0	1.6	6.1
Germany	1970-80	0.2	0.0	0.1	4.1
Greece	1971-81	n.a.	1.1	4.9	n.a.
Italy	1971-81	1.6	0.5	3.6	3.6
Japan	1970-80	0.8	0.0	1.7	3.8
Netherlands	1970-80	1.0	0.0	2.7	3.7
Norway (b)	1970-80	1.2	0.0	4.4	8.2
Portugal	1970-80	3.2	1.6	5.2	10.3
Spain	1970-80	1.3	0.4	5.2	8.1
Sweden (b)	1970-80	1.1	0.0	2.9	5.8
U.K. (c)	1971-81	0.6	0.0	1.1	4.9
U.S.A.	1970-80	0.9	0.0	0.9	5.6
Average		1.1	0.3	2.6	5.7

(a) Total 20-59
(b) Total 25-59
(c) Excluding Northern Ireland

Appendix I

Sources Used in Calculating Educational Levels

BELGIUM

Source:

The 1961 census provides a table giving a breakdown of the population by sex, four age groups and 12 terminal education ages, see Recensement du Royaume de Belgique 1961, Tome X, Table 8 p.22. This table refers to the population 14 years and over no longer enrolled in full-time education, broken down by age group and sex and by the year of age at which full-time education terminated. ("Population de 14 ans et plus ne suivant plus un enseignement de plein exercise, repartie par groupes d'âges et par sexe et selon l'âge jusqu'auquel un enseignement de plein exercice a été suivi"). Census data for earlier years (1947 census, tome IV) are limited to a breakdown of the population by age and degree of literacy only. At this date only preliminary population statistics are available from the 1970 census.

Estimates of the educational stock are given by E. Raymaekers in "The Educational Stock of the Active Population in Belgium, for 1940, 1950, 1960 and 1970", unpublished memorandum for OECD, 1963.

M.M. Frank and Associates in "L'éducation et la croissance économique en Belgique", Cahiers Economiques de Bruxelles, No. 24, 1964, provide estimates of the stock of educated people and related earnings. However the labour force is divided by occupational category rather than education stock.

Methodology:

The data are for the four age groups 14 to 19 years, 20 to 39 years, 40 to 59 years, and 60 years and more. In each age-group the population is broken down by the age at which full-time education was terminated, by single years of age from 14 years and under to 25 years and over.

In all age cohorts at least 50 per cent of the persons are included in the category having left school at 14 years and less, rising to over 80 per cent in the 60 and over age-group. In order to estimate the distribution of education below age 14, use was made of French data - France having an education system roughly comparable to that of Belgium. In "Une méthode de calcul du stock d'enseignement", Population, mai-juin 1966, tables I and II, Debeauvais and Maes provide data giving a breakdown of the French population by quinquennial year of birth from 1840 to 1960, and by duration of education in years from 3 years and less to 24 years and more.

CANADA

Sources:

Census of Canada 1941, Table 47, p.659, "Population 10 years of age and over not attending school, by years of schooling, five-year age-groups and sex, for Canada, rural and urban by size groups, 1941".

Census of Canada 1951, Table 27, "Population 10 years of age and over not attending school, by years of schooling, five-year age-groups and sex, for Canada 1951".

Census of Canada 1961, Vol. 1, Part 3, Schooling by Age Groups. Table 102. "Population 10 years of age and over not attending school, by highest grade attended, five-year age-groups and sex, for Canada 1961".

Census of Canada 1971, The Out-of-School Population. Catalogue 92-74.3. Vol : 1-Part : 5. (Bulletin 1.5-3). Table 4. "Population 15 years and over, not attending school full-time by level of schooling, showing age-groups and sex," Canada, 1971.

Census of Canada 1971. Vocational Training. Catalogue 92-721 Vol: 1 - Part : 2 (Bulletin 1.2-9). This report includes tables giving detailed classifications of vocational courses by sex, type of training, length of course, and date of completion, and broader classifications by sex and level of schooling completed.

Census of Canada 1971 Advance Bulletin Catalogue 92-764 (AP- 13). Statistics Canada, September 1973. Population by School Attendance and Level of Schooling. Table 1. "Population 5 years and Over, by School Attendance, Level of Schooling and Sex, for Canada, 1971".

G.W. Bertram, The Contribution of Education to Economic Growth, Economic Council of Canada, 1966, provides data on the growth of educational stock from 1911 to 1961, but deals with the male population only.

Walters D., Canadian Income Levels and Growth: An International Perspective. Economic Council of Canada 1968 contains an extension of the Denison analysis to Canada. A revision of the estimates of economic growth in Canada is incorporated in D. Walters Canadian Growth Revisited 1950-67, Economic Council of Canada 1970.

J.R. Poduluk, Earnings and Education, Dominion Bureau of Statistics, Ottawa 1965, also exploits the 1961 Canadian census data.

J.R. Poduluk, Incomes of Canadians, Dominion Bureau of Statistics, Ottawa 1968.

CANADA (cont'd)

Statistics Canada. The Labour Force, February 1973, "Educational Attainment April 1972". This article reports on a supplementary question added to the regular Labour Force Survey of April 1972 asking respondents to give the highest level of education they have completed. Table S-1, p.62, gives a breakdown of the civilian non-institutional population 14 years of age and over in ten-year age-cohorts, by sex and nine levels of schooling. The Labour Force Survey is a monthly sample survey of 30,000 households, and has included a question on educational attainment each year since 1966.

Methodology:

In 1941 and 1951, census data refer to years of schooling completed, and in 1961 and 1971, to highest grade attended. The latter form would overstate the number of grades of schooling actually completed, but would also understate the number of years in school since repeated years are not included.

The degree of detail in the census tabulations has differed from year to year, comprising groups of up to four years of schooling. A precedent for breaking down these groups into specific years of schooling was established for the 1961 data by Bertram (op.cit). Bertram computed the average years of schooling obtained by the male labour force in the age-groups 25-34, 35-44, 45-54, and 55-64, using the 1961 census data, moving forward more detailed data in the 1941 census, and using data on retention rates published by the Dominion Bureau of Statistics, notably in Student Progress Through the Schools, 1960. Bertram's methodology is described in his Appendix B.2, p.97, and some of the data on retention rates he employed are given in Tables 11, 13, 14 and 17 of his book.

Our estimates for 1951 and 1961 were made following Bertram's methodology, but with additional information from the 1971 census regarding the separation of persons with grade 12 or grade 13 and different assumptions regarding university-level achievements.

In 1971, persons with no schooling were not distinguished from persons with 1-4 years of schooling. For age-groups 25 and over, the proportion of persons with less than five years of schooling having never attended school was assumed to be the same as in the cohort ten years younger in 1961. For the age-groups 15-19 and 20-24 this proportion was arbitrarily assumed to be 20%.

In all the censuses persons with 1-4 years of schooling were grouped together. In the absence of historical data, a distribution was arbitrarily assigned to each ten-year age-cohort. These distributions, shown below by year of birth, produce the same average years of schooling in this range as Bertram assumes for the age-groups his study considered.

CANADA (cont'd)

Years of schooling

Year of birth	1	2	3	4
Before 1886	20	20	25	35
1886-1896	15	20	25	40
1896-1906	10	20	30	40
1906-1916	10	15	30	45
1916-1926	5	10	35	50
1926-1936	5	10	15	70
1936-1956	5	5	10	80

In 1951, 1961 and 1971 persons with 5-8 years of schooling were grouped together. For the appropriate age-cohorts, data from 1941 giving a breakdown into 5-6, 7 and 8 years were brought forward. For younger age-groups the breakdown was based on estimated retention rates given in Student Progress Through the Schools, 1960 Dominion Bureau of Statistics, p.29 and 1965, p.13. In all age-groups, it was assumed that for the group 5-6 years, the average was 5.5 years of schooling.

The breakdown of secondary education into specific grades or years was different in each census, and in 1941 and 1951, a composite group, 13-16 years, included persons with both secondary and incomplete university studies. In 1941 the breakdown was 9, 10 and 11-12 years; in 1951 9-12 years; in 1961 grades 9-10, 11, and 12-13; and in 1971 grades 9-10, 11, 12 and 13. Moving forward more detailed data from the 1941 census or backward from the 1971 census gave us a complete breakdown by specific years of schooling for some age-cohorts, and a partial breakdown for others. These gaps were filled by recourse to the Dominion Bureau of Statistics study cited above, or by comparison with the nearest age-cohort for which a complete breakdown had been established.

For 1951, persons having completed 13 years of elementary/secondary schooling were separated from the 13-16 years of schooling group by assuming that they represented the same proportion of persons having 13 or more years of education in 1951 as in the age-cohort ten years older in 1961.

At the university level, Bertram bases his estimates on retention rates through each year to graduation from the Dominion Bureau of Statistics study, which estimated that 79% of first year students proceeded to second-year, 68% to third year, and 61% graduated with a bachelor's degree. More detailed information is given in an Advance Bulletin of the 1971 Census of Canada on population by school attendance and level of schooling (op.cit.) which shows the total number of males and females no longer in the education system by specific year of university attainment up to 6 years or more, further subdivided into persons

CANADA (contd)

with and without a degree. Using this table we established a percentage distribution of persons by year of university education for each sex and for persons with and without a degree. We then assumed that 50% of students had had twelve years of basic education, and 50% thirteen years, giving the distribution of years of schooling below.

Percentage distribution of persons with university education by year of schooling

Years of schooling	Without degree		With degree	
	Males	Females	Males	Females
13	20	23		
14	35	38		
15	23	22	6	12
16	12	10	22	33
17	6	4	27	31
18	3	2	28	17
19	1	1	17	7

Although approximate, this distribution, when applied to 1961 data, gives a proportion of persons having 17 or more years of education closely corresponding to that given for the cohort ten years younger in the 1951 census.

For 1951, the distributions of the groups 13-16, and 17 or more years of schooling based on the same data, are as follows:

	Persons with 13-16 years of schooling per cent			Persons with 17 or more years of schooling per cent	
Years	Males	Females	Years	Males	Females
13	16	20	17	42	56
14	28	29	18	37	32
15	25	25	19	21	12
16	31	26			

It should be noted that in applying the age-cohort technique to the Canadian data we have assumed that the distribution by years of education within groups of years of schooling is unchanged by migration and mortality.

DENMARK

Sources:

Madsen, Pedersen and Elgaard, Nogle Tabeller om Uddannelse Erhverv og Helbred Danish National Institute of Social Research, Copenhagen 1966.

Table 3.13. This table refers to the total population 15 years of age and over distributed by sex, age and vocational education ("Samtlige personer pa 15 ar og derover fordelt efter køn, alder og erhvervsuddannelse").

Table 3.14. This table refers to the total population 15 years of age and over distributed by sex, age and vocational education ("Samtlige personer pa 15 ar og derover fordelt efter køn, alder og erhvervsuddannelse").

Table 3.15. This table refers to the population 15 years of age and over with completed education distributed by sex, general education and vocational education ("Personer pa 15 ar og derover med afsluttet skolenddannelse fordelt efter køn, skolenddannelse og erhervsuddannelse").

Nogle beregninger over befolkningens skoleuddannelse omkring 1990. C. Nørregaard and E.J. Hansen, Danish National Institute of Social Research. Meddelelse No.4, Copenhagen 1973. Tables 9 to 11 present estimates of the distribution of the total population between the classes less than 9 years, 9 to 11 years, and 12 years of schooling and more, by five-year age-groups. Table 9 is derived directly from survey data and refers to 1972. Tables 10 and 11 are projections to 1980 and 1990.

Methodology:

The data are the results of a survey of 10,000 households undertaken between October 1961 and April 1962.

Tables are provided showing the general education received by each age-group, the vocational education received by each age group, and a cross-classification of types of vocational education and levels of general education.

The latter table was used to determine how many of the persons in each age-cohort having a particular level of general education went on to each form of vocational education.

The lowest level of education included in the survey results is seven years. Our estimates were obtained on the assumption that all members of the Danish population obtained at least seven years of schooling, which may lead to some overstatement of the number of years obtained between the ages of 7 and 14.

FINLAND

Source

General Census of Population (Yleinen Vaëstölaskenta) 1950. Vol. VII, Table 2, "Population by educational level and age, by counties".
General Census of Population 1960. Vol. VIII, Table 3, "Population by education and age, by provinces and statistical regions etc." Vol. IX, Table 1. "Population by vocational training and age".
Population Census 1970. Vol. VIIA. Education. Table 3, "Population by age, sex, vocational education and basic education; whole country, provinces etc."

Methodology

In 1970 the census showed the total population distributed by sex, five-year age groups and three levels of general education - matriculation examination, junior secondary school examination and "others", the last category including persons who have only elementary education and those whose education is incomplete. Persons with other education in addition to general education were distributed by sex, age-group and the classes of vocational education shown below. The number preceding each level, which is the census classification code for that level, and the number of years attended associated with that level, were given in the notes accompanying the census in Finnish on p.12 and in English on p.31 of the 1970 census volume VIIA. The level coded 1, "lower level of basic education" is not shown in the census.

Code	Level of education	Number of years attended
2	Upper level of basic education	about 9 years
3	Lower level of secondary education	about 10-11 years
4	Upper level of secondary education	about 12 years
5	Lowest level of higher education	about 13-14 years
6	Undergraduate level of higher education	about 15 years
7	Graduate level of higher education	at least 16 years
8	Postgraduate or equivalent education	same as 7
9	Education which cannot be classified to an education level	-

Each of categories 3-9 is further subdivided into the three levels of general education : matriculation, middle-school and other. In attributing the number of years of schooling to each level we followed the table above for levels 2-5, assuming for example that all persons at level 2 had 9 years of schooling, and that at level 3 50% had 10 years of schooling and 50% 11 years. We assumed that persons at level 6 were equally distributed between 15 and 16 years of schooling, those at level 7 between 17 and 18 years of schooling, and those at level 8 between 19 and 20 years of schooling. Class 9, which contained only about 0.02% of the population, was grouped with class 4.

FINLAND (cont'd)

The number of persons with only general education at each level of the latter was found by subtracting the number with vocational education having each level of general education from the total with that level. Then those persons with matriculation were attributed 12 years and those with the middle-school examination 9 years. Persons in the category "other" were more difficult to deal with and constituted almost 60% of the total population.

The 1950 census breaks down this category into those with partial or no primary education and those with completed primary education. In 1921 a law was passed introducing compulsory primary schooling of six years. In 1948 primary school was extended to 7 years, and in 1957 the length of primary school reverted to 6 years, and the two-year extension course introduced earlier was formalised into a day school. However some 96% of the population aged 7-15 were enrolled in school by the mid-1950's. (Facts and Figures, UNESCO, 1960).

As noted above, the category "others" includes persons still in full-time schooling, whatever level they have reached, and in the absence of enrolment data by age-group for 1970, we have for the present ignored the age-group 15-24. The effect of this factor on the 25-29 year-olds does not appear to be very strong. We have assumed that 95% of those aged 25-39 years in the category "others" had completed primary education. For the older age-groups, we assumed that the same proportion of persons with less than middle school in 1970 had completed primary schooling as in the age-group 20 years younger in 1950. We assumed that all persons with incomplete primary education had five years of education, which probably overestimates the achievements of some of the older age-groups. Then those persons having completed primary education were distributed between 6, 7 and 8 years as follows.

Years of schooling	Age groups 25-29	30-34	35-44	45-54	Per cent 55-64	65+
6	5	10	10	40	80	90
7	5	30	50	50	10	5
8	90	60	40	10	10	5

FRANCE

Source:

Recensement de la population de la France 1968 Education, Table 4. This table refers to the total population aged 14 years and over and active population by terminal education age and five-year age-groups. ("Population totale de plus de 14 ans et population active par âge de fin d'études et d'âge quinquenniel").

M. Debeauvais and P. Maes "Une Méthode de calcul du stock d'enseignement" Population, mai-juin, 1966.

Monfort M. "L'évolution de la structure éducative de la population active francaise entre 1962 et 1968" in Revue Francaise de Pédagogie, October-December 1972, uses 1968 census data on terminal education age and diplomas to perform an analysis of the labour force by education, occupation and socio-professional category.

Data are also available from earlier censuses, most recently in 1954, where data refer to terminal age of education, and in 1962, when data refer to the highest diploma obtained.

Methodology:

The French census data for 1968 give the population classified by sex, age-group and terminal education age as follows: less than 15 years, 15 years, 16 years, 17 years, 18 years, 19 years, 20-24 years, 25-29 years, 30 years and more.

A complete distribution of the population by single year of education from 3 to 24 years and more was derived using work by Debeauvais and Maes (op. cit. Tables I and II). Debeauvais and Maes have derived for each sex a table showing the population distributed by years of education, from 3 to 24 years, and quinquenniel year of birth, using interpolations of historical enrolment data. Those persons in each age-group included in the composite terminal education age-groups less than 15 years, 20-24 years, and 25-29 years were distributed by single year of age in the same ratio as is given in Debeauvais and Maes' tables for those years of education in the year of birth most closely representing the age group.

It should be noted that France is the only country whose data extends to cover postgraduate education, and thus may show a greater number of years of education at the higher level than other countries.

GERMANY

Source:

Wirtschaft und Statistik No. 3 March 1966. A table on p.178 shows the active and non-active populations aged from 14 to 64 having completed general or further education by age-group and type of last school completed. ("Erwerbs- und Nichterwerbs-personen im Alter von 14 bis unter 65 Jahren mit Abschluss an einer allgemein- bzw. fortbildenden Schule nach Altersgruppen und Art des Schulabganges"). An appendix table on p.167 shows the active population aged between 14 and 64 years inclusive by age-group, industry and occupational status ("Erwerbstätige im Alter von 14-65 Jahren nach Altersgruppen, Wirtschaftsabteilungen und Stellung im Beruf").

Wirtschaft und Statistik No. 3 March 1974. An appendix table (p.121) presents data from the 1970 census showing both total and active populations by sex, five-year age-groups and highest level of education completed ("Wohnbevölkerung und Erwerbspersonen nach Altersgruppen und Art des höchsten Schulabschlusses"). An analytical text, p.177 ff. describes the types of education included in each category.

Methodology

The earlier data are taken from the results of a survey of 200,000 households on vocational education undertaken as part of the 1964 1% microcensus. The first table (p.178) gives a breakdown of the population (excluding immigrants)by four levels of schooling. The number of years attributed to each level is shown below.

1. General education before intermediate cycle (Volkschule bzw. vor mittleren Reife) 7.5 years
2. Intermediate cycle (Nach Erreichen der mittleren Reife) 10 years
3. Completion of intermediate cycle without certificate allowing entry into higher education (Nach Erreichen der mittleren Reife jedoch vor den Abitur) 11.5 years
4. Leaving certificate of gymnasium or gymnasium evening classes allowing entry into higher education (Abitur bzw. Abendabitur) 13 years

GERMANY (contd)

The number of years corresponding to each level was taken from Classification of Educational Systems. Germany. OECD Paris 1972. For the first category, we have followed E.F. Denison (see Why Growth Rates Differ, Brookings, Washington, 1967, p.391), in assigning 7.5 years of schooling to this group. Throughout most of the period in which the respondents to the Mikrocensus survey were receiving their education, the school-leaving age was 14. Denison's (unstated) source shows that 80.2% of the population aged 5 to 14 in 1958 were enrolled in school, which implies an average of 8.02 years of schooling received by children in that age-bracket. Because this group includes those persons continuing voluntarily through their 14th year, Denison assumes that those leaving school after completion of compulsory schooling had somewhat less than 8 years, and takes 7.5 years as a reasonable estimate for the survey period. Enrolment data for children in this age-group are available from 1953 (see Allgemeinbildende Schulen 1950 bis 1964, Statistiches Material, Ständige Konferenz der Kultursminister der Länder in der Bunderepublik Deutschland, No. 17, Bonn, October 1965). Throughout the period 1953 to 1964 the enrolment rate was in the region of 80% and showed no increasing trend in the period. In the absence of statistical data refuting Denison's assignment of 7½ years to this category, it is accepted here as the most reasonable assumption. However it should be noted that, since some three-quarters of the population fall into this category, the assumption that all the age-groups in the survey received the same number of years of education in Volksschule is crucial in determining the total number of years of education received.

The second table (p.167) shows the percentages of the population having the following types of vocational education ("berufsbildendeschule").

1. Vocational, clerical and administrative training schools
   (Berufsfach-, Verwaltungs-, Fachschule)

2. Technical schools
   (Technikerschule)

3. Engineering schools
   (Ingenieurschule)

4. Teacher-training colleges
   (Pädagogische Hochschule)

5. Universities and equivalent
   (Universität oder Hochschule)

Students normally proceed to each of these types of vocational education on completion of a particular stage of general education. The number of years attributed to each level and the type of general schooling preceding each level, were taken from the OECD classification system and are as follows:

GERMANY (cont'd)

1. 33.3% each 11, 12 and 13 years (follows Volksschule)

2,3. 15 years (follows Mittlere Reife)

4. 16 years (follows Abitur)

5. Males : 80% 17 years, 8% 18 years, 12% 19 years
Females : 75% 17 years, 8% 18 years, 17% 19 years
(follows Abitur)

At the university level, a rough division of graduates between courses of different lengths was taken from Bevölkerung und Kultur Reihe 10 Bildungswesen. V. Studerande an Hochschulen, showing in different years the number of graduates by discipline.

The first table showing levels of formal schooling was used to derive a table showing percentages of each age-group having obtained each level of formal schooling. From these percentages were subtracted the percentages of respondents declaring a higher level of education (from the second table) e.g. of 8.2 per cent declared as leaving school after the "Mittlere Reife", 1.1 per cent went on to technical or engineering schools, leaving 7.1 per cent who had only the "Mittlere Reife".

It should be noted that these data refer to the active population of German nationality and do not include foreign workers who constituted 2.4 per cent of the labour force in 1964.

The later data, from the 1970 census, show both total and active populations by sex, five-year age-groups, and six terminal education levels, both general and vocational, and allow a more detailed analysis. The classification of respondents into these six levels, described on p.177 of Wirtschaft und Statistik No. 3,1974, presents some problems in attributing years of schooling to each level, particularly to the first "Volksschule und Berufsschule". Some 70% of the total population are classified at this level, which includes all persons who have attended school without obtaining the middle-school certificate or its equivalent, including those who went on to complete part-time vocational training. The length of compulsory schooling has changed over the period in which the 1970 population were enrolled in school from 7 to 9 years, and there is also evidence of low enrolment rates, and a certain amount of repetition of school years and drop-outs.

The German educational statistics (Bevölkerung und Kultur, Reihe 10, Bildungswesen) provide fairly detailed information about enrolment in each type of school and certificates awarded by year of birth, pupils in each grade failing to reach the standard required for advancement and school-leavers by grade and type of school. Some of this data is available from 1953 onwards, most of it for the last ten years only, and it was in this ten-year period that the school-leaving age was raised to 15, and the school-year changed from 1st April to 31st March, to 1st August to 31st July, with two short-school years in 1966-1967. These factors were taken into account when examining the patterns of drop-outs, repetitions, enrolment rates etc., and the distribution of persons classified in each terminal education level by years of schooling is based on the assumption that the patterns observed in the 1950's and 1960's pertain to the full period in which the 1970 population were in the education system.

1. Volkschule/Berufsschule

The coverage of this level has been discussed above. The percentage distribution by years of schooling is based on numbers leaving Volksschule, Sondersschule, Realschule and Gymnasium without the leaving certificate of Realschule or admission to Obersekunda in the Gymnasium, by year of study, with adjustment for repetition and enrolment rate. The group aged 65 and over left school before the school-leaving age was raised to 14 years; in this case the distribution by years of schooling is arbitrary.

	Age-groups - per cent		
Years of schooling	65 & over	20 - 64	15 - 19
7	80	30	0
8	15	40	30
9	5	20	60
10	0	10	10

2. Mittlere Reife

This level includes all persons who completed Realschule or Mittelschule, or a "progymnasium", or the certificate allowing entry to "obersekunda", but did not obtain the Abitur or any higher vocational qualification. The distribution by years of schooling is based on a distribution of persons obtaining the "Abschlusszeugnis der Realschule" by year of birth, which first appeared for the school-year beginning in 1965, and a distribution of persons leaving Gymnasium without obtaining the Abitur by last grade completed.

Years of schooling	10	11	12
Per cent	75	20	5

GERMANY (contd)

3. Abitur

This category includes all persons having a certificate allowing entry to higher education, including the leaving certificate of Wirtschaftsoberschule. The distribution is based on tables available from 1962 onwards showing "Abiturienten" by year of birth.

Years of schooling	13	14	15
Per cent	70	20	10

4. Berufsfach-/Fach- schule

This level includes persons leaving full-time vocational schools or specialised secondary technical schools, including agricultural schools, academies and kindergarten teachers' training schools. Courses range in duration from one semester to three years, and the entrance requirements vary from Hauptschule leaving certificate only to a prior vocational training certificate and professional experience. We have assumed that the persons classified at this level are distributed equally over 11, 12 and 13 years of schooling, basing this assumption on tables showing the number of pupils in Fachschule and Berufsfachschule by year of birth and by previous education (from Bevölkerung und Kultur, Reihe 10, Heft II, Berufsbildende Schulen). The variety of paths a student may take to achieve this level prohibit a more accurate distribution by years of schooling.

5. Ingenieurschule

The schools included in this category are now being transformed into "Fachhochschulen"; the 1970 census respondents had completed Höhere Fachschulen, Bauschulen, Baugewerkschulen, Staatsbauschulen, Höhere technische Lehranstalten or Polytechnics. Most students have completed Mittel- or Real-schulen, a small percentage have completed the Abitur. In addition some students have practical experience and most have completed some technical secondary education equivalent to the newly established Fachoberschulen. In general the course lasts six semesters. We have assumed that all respondents in this category have 15 years of schooling.

6. Hochschule

This category covers universities, teacher training colleges, and the several specialised "Hochschule". The distribution by years of schooling below is derived from tables showing

GERMANY (cont'd)

graduates by discipline in several years, and the length of each course in semesters given in OECD Classification of Educational Systems - Germany.

	Years of schooling				Per cent
	16	17	18	19	
Males	25	55	10	10	
Females	65	20	5	10	

(These figures differ from those used for the 1964 microcensus data, since the latter gave teacher training colleges as a separate category).

GREECE

Source:

Results of the population and housing census of 19th March 1961 Elaboration Volume II Education

Table II. 1: "Total population 10 years of age and over, by sex, age and general level of education. Thereof illiterate".

Table II.4: "Graduates of Higher Schools, by sex and type of (main) diploma. Graduates with a second diploma, by sex, and type of this diploma".

Results of the population and housing census of 14th March 1971. Sample Elaboration. Volume I

Table I.4: "Population Aged 10 and over by educational level, sex and age-groups".

Table I.5: "Graduates of higher schools by sex and type of diploma".

Methodology:

The Greek data give population by sex, age and five educational levels - those with higher, secondary, and primary education, those not having finished primary school, and the illiterate. A second table gives the proportion of those having higher education who have each of 7 forms of higher education, including university which is classified by discipline, by sex but not by age. This table was used to allocate the proportion having higher education between different years.

The number of years attributed to each level using the OECD Classification of Educational Systems was

Primary

4 years for those leaving school in and before 1929
6 years for those leaving school after 1930

Secondary

4 years for those leaving school before 1928
6 years for those leaving school in and after 1928

University

Theology and humanities - 4 years
Mathematics and natural sciences - 4 years
Law, economic and political sciences - 4 years
Medicine - 6 years
Dentistry - 5 years
Agriculture, forestry, veterinary - 5 years

GREECE (cont'd)

Other Higher

Polytechnics - 5 years
Independent schools for economics, political sciences and business administration - 4 years
Teacher training colleges, national colleges and gymnastics - 2 or 3 years
Art schools and other schools of higher education - 2 years
Agronomists - 4 years

Those classed as illiterate were equally distributed between 0 and 1 years of schooling. Those not having finished primary school were assumed to have had education as indicated below. The age groups 45 and over and 44 and under correspond roughly to those persons receiving primary education before and after the 1929 revision of the system. (The proportions are based on the enrolment statistics for 1954-5).

MALES

45 years of age & over	44 years of age & under
50 per cent had 2 years of education	20 per cent had 2 years of education
50 " " " 3 " " "	27.5 " " " 3 " "
	27.5 " " " 4 " "
	25 " " " 5 " "

FEMALES

50 per cent had 2 years of education	5 per cent had 2 years of education
50 " " " 3 " " "	30 " " " 3 " "
	20 " " " 4 " "
	45 " " " 5 " "

The group having completed primary school includes both those who terminated education at the primary school level, and those who completed a part of secondary education.

Unpublished data provided by the Greek authorities in response to a 1968 UNESCO questionnaire indicate that some 50 per cent of males and 35 per cent of females entering secondary education in each year in the period 1960 to 1968, dropped out without obtaining a diploma. The same source also allows us to estimate approximately the proportions "dropping out" in each year of the secondary school course. No earlier data being available, these data were used in distributing the census data for 1961 and 1971. For each age-cohort, a proportion of the group declared as having completed primary education equivalent to 100 per cent for males and 55 per cent for females of the group declared as having completed secondary education were distributed between the years comprising the secondary school course as follows:

GREECE (cont'd)

44 years of age & under

	Years of education				
	7	8	9	10	11
Males	30%	12.5%	20%	12.5%	25%
Females	35%	10%	20%	5%	30%

45 years of age & over

	Years of education		
	5	6	7
Males	35%	30%	35%
Females	35%	30%	35%

The distribution between years of education is derived from the UNESCO data for the age-group 44 years and under and is arbitrary for the age-group 45 years of age and over.

The remaining proportion of the group declared as having completed primary school education were distributed as follows:

44 years of age and under - 75% 6 years, 25% 7 years
45 years of age and over - 75% 4 years, 25% 5 years

These proportions allow for repeated years of primary school and are based on enrolment statistics for the earliest year available (see Statistiques de l'enseignement, Tome A, Enseignement primaire, Année Scolaire 1954-55)

Adjustments allowing for repetition of school years were also made at the secondary school level, based on data given in the UNESCO questionnaire, and are as follows:

44 years of age and under - 50% 12 years 50% 13 years
45 years of age and over - 50% 8 years 50% 9 years

The Greek data include those still studying.

IRELAND

Source:

Census of Population 1966. Volume VII. Tables 1A and 1B. "Males (Females) classified by present age and age at which full-time education ceased".

Methodology:

The Irish data show the population distributed by age at which full-time education ceased from under 14 years of age to 25 years and over, by five-year age-groups, and by sex.

Those persons having left school under 14 years of age were assumed to have 50% 6 years and 50% 7 years in the age-group 75 years and over, 33% 6 years and 67% 7 years in the age-group 65 - 74, and 7 years in all other age-groups.

All persons having left school aged 19 and over were assumed to have had some higher education, in accordance with Table 205, of the Statistical Abstract of Ireland 1969, which indicates that the median age of entry into higher education in 1967-68 was 18. 7 years.

ITALY

Source:

Censimento 1951 Vol. V Istruzione

Table 1 provides a classification of the total resident population by sex, age-group and six levels of education. Table 2 classified the resident active population by sex, level of instruction, field and form of employment.

Censimento 1961 Vol. VII Istruzione

Tav. 1. This table refers to the resident population of six years of age and over by sex, age-group and level of education. ("Populazione residente in eta da 6 anni in poi per sesso, classe di età e grade di istruzione").

Tav.3. This table refers to the resident population aged six years and over, active and non-active, by sex, age-group and level of education. ("Populazione residente in età da 6 anni in poi, attiva et non attiva, per sesso, classe di età e grado di istruzione").

Other Sources

Data on university level education are given for the two sexes combined in The Mediterranean Regional Project: Italy, OECD., 1965, p.36. A breakdown by sex is given in the yearly publication Relazione Generale sulla Situazione Economica del Paese, Central Institute of Statistics, (STAT).

Methodology:

The Italian source shows final levels of educational attainment rather than years of schooling. In order to arrive at estimates of the latter, use was made of the O.E.C.D. Classification of Educational Systems and the Italian statistics of education publication Annuario statistico dell'istruzione Italiana.

ITALY (cont'd)

These sources yield estimates as follows:

Laureati	
Medicine and Surgery (Medicina e chirurgia)	19 years
Architecture (Architetura)	18 years
Engineering (Ingengaria)	18 years
Others	17 years
Diplomati	
Classics (Maturita classica)	13 years
Sciences (Maturita scientifica)	
Law (Abilitazione magistrale)	12 years
Technical (Instituti technici)	13 years
Arts (Maturita artistica)	13 years
Other diplomas (Altri diplomi)	13 years
Lower Middle School Certificate (Forniti di licenza di scuola medie inferiore)	8 years
Elementary School Certificate (Forniti di licenza di scuola elementare)	
3 year course (3a elementare)	3 years
5 year course (5a elementare)	5 years
Literate without Certificate (Alfabeti prive di titolo di studio)	2 years
Illiterate (Analfabeti)	50% 0 years, 50% 1 year

These figures represent normal length of education for the types of education considered. They do not take account either of persons who complete part of a course after that which they state that they have completed, or of repeated years.

ITALY (contd)

Data on total enrolments and numbers repeating each grade are given from 1953 onwards for the first five years of education in the Italian statistics of education, and from 1961 to 1968 for the first thirteen years of education in the response to the 1970 UNESCO questionnaire on enrolment rates (serial no. COM/WS/83). The average number of years taken to complete a given stage of schooling were calculated using a simplified model of the progress of a cohort through the educational system. (See Education, Human Resources and Development in Argentina, Methodological Problems and Statistical Data, O.E.C.D., 1968).

This analysis yields estimates of the years required to complete each course as follows:

Diplomas

Law	60% 12 years, 40% 13 years
Other diplomas	40% 13 years, 60% 14 years

Lower Middle School Certificate

	50% 8 years, 50% 9 years

Elementary School Certificate

3-year course	30% 3 years, 70% 4 years
5-year course	10% 5 years, 90% 6 years

Literate	2 years
Illiterate	50% 0 years, 50% 1 year

In each case the numbers proceeding to each stage of schooling were commensurate with the assumption that these persons completed the previous stage in the normal time.

No data on repetition rates at the Laureati stage being available, it was assumed that the repetition rate in each year of the course was the same as the average for the years of the "diplomati" course.

Laureati

Medicine & Surgery	30% 19 years, 70% 20 years
Architecture & engineering	40% 18 years, 60% 19 years
Others	50% 17 years, 50% 18 years

The same sources allow us to compare drop-out rates in each year of schooling. The census data show only those who complete each course; of those classified as having achieved e.g. an elementary school certificate, a proportion went on to complete the first year or two of the three-year course leading to the middle school certificate. The data given on enrolments in each year of schooling in the answers to the UNESCO questionnaire allow us to calculate the ratio of those completing each course to the total entrants to the course, and the proportion dropping out in each year of the course.

ITALY (contd)

At the primary school level, the detailed classification does not warrant any adjustments for drop-outs.

At the middle school level, the ratio of entrants to graduates in 1960-61 was 2.0. Therefore a percentage equal to the percentage total of those having at least eight years of education was subtracted from the total declared as having five years of education, and divided between 6 and 7 years of schooling in the ratio 3:2, as indicated by the drop-out rates for each year of schooling.

Similarly, at the "diplomati" level, the ratio of entrants to graduates in 1960-61 was 2.1; thus a percentage equal to 110 per cent of the total percentage of those having at least twelve years of schooling was subtracted from the total declared as having eight years of education, and divided between nine, ten and eleven years of schooling in the ratio 0.65 : 0.25 : 0.20.

Again no data were available at the laureati level; it was assumed that the ratio of entrants to graduates was 1.5, and that the drop-outs could be distributed between 14, 15, and 16 years of schooling in the ratio 3 : 1 : 1.

JAPAN

Source:

Census of Japan 1960 Abridged report, Part I, (Table 19).

School enrolment and type of the highest school completed by persons 6 years old and over, by age and sex, for all Japan 1960.

Census of Japan 1970, Prompt report of the basic findings, Table 6.

School attendance and types of last school completed, of population 15 years of age and over, by age (8 groups) and sex for Japan and prefecture.

Data on the breakdown of the active population by age are given in the Annual Report of the Labour Force Survey, Bureau of Statistics, Office of the Prime Minister, Japan. Education data are given in the Annual Report of Education Government Printing Office, Tokyo.

Hisao Kanamori, "What Accounts for Japan's High Rate of Growth" Discussion Paper No. 11, Economic Research Institute, Economic Planning Agency, Tokyo 1971, gives basic estimates of the stock of education for 1955-1968.

Tsunehiko Watanabe "Improvement of Labour Quality and Economic Growth - Japan's Postwar Experience", in Economic Development and Cultural Change. Vol. 21, No. 1, October, 1972, estimates labour quality indices from education and earnings data.

Methodology:

The 1960 and 1970 data give total population having completed school by sex, age-group, and 9(1960) or 6 (1970) levels of education. The classifications given in the 1970 census were subdivided to give the same 9 classes of the 1960 data using the data for the cohort 10 years younger in 1960.

The youngest age-group in 1970, i.e. 15-24 year olds were enrolled at the lower secondary school level (seven to nine years of schooling) between 1958 and 1970, throughout which period enrolment at this level was 99.9% of the age-group. (See for earlier years Education in 1960) Annual Report of the Ministry of Education, Research section, Research bureau, Ministry of Education. Government of Japan, Table 37, p.147. "Number of Lower Secondary School Pupils by Sex, 1947-1960". This age-group was therefore assumed to have completed at least nine years of education.

The years attributed to each level were taken from Tsunehiko Watanabe "Improvement of Labour Quality and Economic Growth - Japan's postwar Experience", in Economic Development and Cultural Change, October, 1972, op.cit., which gives the years implied by types of schooling in both the old and the new systems, th latter being introduced after the Second World War.

JAPAN (contd)

Japanese statistics show no evidence of drop-outs or repetition of school years. Enrolment statistics at the primary level show that a high percentage of the age-group has been enrolled in schooling throughout the century, e.g. in 1910 98.8% of boys and 97.4% of females were enrolled in elementary school (Education in 1956, Part II, p.42, Table 31. Number of Elementary School Pupils by Sex 1900-1956). It was assumed in this study that all pupils completed courses embarked on in the normal number of years required.

Most courses of study at university require 4 years with the exception of medical science which requires 6 years. Over 1957 to 1963, about 4.2% of total graduates graduated in medical science (Education in 1956, Table XI, p.72). Thus approximately 4.2% of those declared as having completed university were assigned 6 years of university, the rest being assigned 4 years.

NETHERLANDS

Source

The Secretariat based its estimations of levels of educational attainment on an unpublished table compiled by the Netherlands Central Bureau of Statistics for O.E.C.D. This table was derived from :

13th Census of Population. May 31st 1960. Volume 8 : Type of education received and overall level of education. A General Introduction. Table 5a p.26 shows the economically active population distributed by level of education, ten year age-groups and sex.

Educational matrix 1969, 1970, 1971. These publications are based on a survey technique permitting the analysis of flows of students through the educational system and entry to the labour force. Graph 9 on p.73 of the Educational Matrix 1969 shows an approximation of the nominal number of years of education received upon entry into the labour force from each level of education.

Methodology

In the 1960 census all persons having worked for at least 15 hours a week were considered to be economically active. Such persons were asked to enumerate all types of full-time education received, including university education, and also all certificates obtained, at both school-examinations and State-examinations. It has been assumed that persons without an occupation who do not receive full-time education have at least received primary education, they have therefore been asked only to enumerate certificates obtained in secondary general education, teacher's training or university education. For the economically active population separate surveys have been compiled on the general education received, the vocational education received and the certificates obtained outside full-time education, and moreover on the overall level of education based on these three categories.

Table 5a of census volume 8a provides a distribution of the economically active population by overall level of education : lower, upper-lower, medium, semi-higher, higher level, age-groups 14-24, 25-34, 35-44, 45-54, 55-59, 60-64, 65 and over, and sex. The Netherlands Central Bureau of Statistics has regrouped these data to form a table showing the economically active population distributed by sex, ten year age-groups, and the following types of education :

A = primary school

B = primary school with not completed secondary education

C = junior vocational training.

NETHERLANDS (contd)

D = secondary modern school with or without junior vocational training

E = either senior vocational training, or secondary grammar school with or without senior vocational training

F = either higher non-university vocational training (teacher's training, social worker's training schools, technical colleges, military officer's training colleges, etc.) or university education lower degrees ("Kandidaats" - examinations, excluding lower degree in theology and completed senior seminary)

G = university education higher degrees ("doctoral" and other final university examinations, including lower degree in theology and completed senior seminary)

Levels A and B above correspond with the lower level in census Table 5a. The upper-lower level and part of the medium level have been regrouped into levels C, D and E above. The other part of the medium level, i.e. those who possess a primary school teacher's certificate or equivalent, forms together with the semi-higher level the level F above. Apart from slight modifications the higher level corresponds with level G above.

The transformation of levels A to G into years of schooling is complicated by the following factors : a) the complex patterns of progress through the educational system in the Netherlands and b) the discrepancies between nominal and real duration of studies. Precise data on study patterns and real duration of studies are not generally available, therefore the number of years of schooling attributed to each level by the Netherlands Central Bureau of Statistics is not intended to be precise, and no adjustment has been made for repetition.

The Educational Matrix is based on a survey of the current educational status of students, in terms of type of school, grade and certificate, and their educational status a year earlier. The patterns of flow between the two years can then be analysed, and the difference between the two stocks is explained in terms of inflow and outflow. The number of years attributed to each level is derived from this survey and is as follows : A = 6 years, B = 7.5, C = 9, D = 9, E = 12, F = 12 and G = 18 years.

It should be noted that the data for the Netherlands refer to the active population. The Netherlands Central Bureau of Statistics has estimated the distribution of the total population by sex and years of schooling on the basis of data

NETHERLANDS (contd)

given in Tables 1a - c, Volume 8a of the census, showing the total and economically active populations separately by sex and level of general education. The ratio of the percentage of persons in the total population having the lower secondary general certificate to the percentage of persons in the active population with the same certificate is used as a proxy for the ratio of the percentage of the total population with levels B, C and D to the percentage of the active population with the same level. Similarly the relation for secondary grammar school is applied to level E and that for university education to levels F and G. The operation was performed separately for males and females, and gives the following number of years of education for the total population aged 14 and over not enrolled in full-time education :

	Males	Females
economically active population	7.94	7.99
total population	7.79	7.08

NEW ZEALAND

Source:

New Zealand Census of Population and Dwellings 1966 Vol.6. Education and Birthplace. Table 1. "Level of Educational Attendance and average years of attendance by age". Table 2 "Level of Education of persons aged 15 years and over by years of attendance and age-groups".

Educational Qualifications in the Labour Force, Ian D. Livingstone. New Zealand Council for Educational Research, Wellington 1973, is a census monograph analysing manpower aspects of the information on educational qualifications contained in the census of 1966.

Methodology:

Both tables provide data by sex and by the age-groups 15-19, 20-24, 25-44, 45-64, and 65 years and over. Table 1 shows the number of persons having completed their education at each level and the number of persons still attending each level, and the average number of years attended at that level and at the preceding ones.

Table 2 shows the number of persons having attended primary school, secondary school, and university by the number of years attended at the highest level and at the preceding levels, the groups of years at each level being 1,2,3, 4-5, and 6 or more years.

The procedure used in converting the data into a distribution by years of schooling is as follows. A distribution by years of attendance at the highest level attended was taken from Table 2. Comparison of the distribution by years of attendance shown in Table 2 with the average years of attendance at that level shown in Table 1 leads us to make the following assumptions about the groups 4-5 years and 6 years or more:

All levels 4-5 years : 50% 4 years, 50% 5 years.
Uuniversity 6 years or more : 50% 6 years, 25% 7 years, 25% 8 years.
Secondary 6 years or more : 6 years.

Primary 6 years or more:

Aged 65 and over : 5% 6 years, 5% 7 years, 80% 8 years, 10% 9 years.
Aged 45-64 : 2% 6 years, 3% 7 years, 70% 8 years, 25% 9 years.
Aged 25-44 - Males : 2% 6 years, 3% 7 years, 25% 8 years, 70% 9 years.
Females : 2% 6 years, 3% 7 years, 50% 8 years, 45% 9 years.
Aged 20-24 - Males : 2% 6 years, 3% 7 years, 15% 8 years, 80% 9 years.
Females : 2% 6 years, 3% 7 years, 20% 8 years, 75% 9 years.
Aged 15-19 : 2% 6 years, 3% 7 years, 5% 8 years, 90% 9 years.

The average number of years attended at the preceding levels was taken from Table 1, and added to each component of the distribution by years attended at the highest level, e.g. for males aged 25-44, Table 1 section A shows that persons whose highest level of attendance was university had on average attended primary and secondary school for 11.8 years. Then of those persons having 3 years of higher education, 20% were assumed to have 14 years of schooling and 80% 15 years, etc.

NORWAY

Sources:

Census 1960, Vol IV, Table 2. This table refers to persons 15 years and over, by sex, age, and general education (Personer 15 ar og over etter kjønn, alder og allmennutdanning).

Census 1960, Vol IV, Table 6. This table refers to persons 15 years and over by sex, age and highest vocational education (Personer 15 ar og over etter kjønn, alder og høyeste spesialutdanning).

Similar data for 1950 are provided in the Census of 1950, Vol. VI.

Hoffman, E. On the Measurement of the Stock of Educational Capital and an Attempt to Measure Norway's Stock of Educational Capital in 1960, Statistik Sentral-byra 1968.

A.M.Arnesen "Measuring the Educational Stock of the Labour Force". mimeographed document, OECD, Paris, 1963.

Methodology:

The data from the 1960 census give a breakdown of the population by three levels of general education and, in a separate table, thirteen different types of vocational education.

The data on general education were further broken down into four groups using data from the 1950 census for the cohort ten years younger. The lack of appropriate data for the 15-19 and 20-24 age-groups necessitated the use of the data in the 1950 census for the age-groups 15-19 and 20-24 in establishing this breakdown. This may have led to some understatement of the years received in these age-groups. There may also be some understatement due to the fact that the data refer to those having completed each level of education, so that those having dropped out in the middle of a course, or who are still following a course are included in the total for the last level of education actually completed.

A precedent for the method of combining the two tables, general and vocational education, was established by Arnesen (op. cit.) whose main source of data was the 1950 census. In Arnesen's study, the percentage having no vocational education was distributed between the levels of general education in the same proportions as the total population as given in the 1960 Census table 2, subject to the constraint that approximately 80 per cent of the population without vocational education is also without general education above the primary level.

NORWAY (cont'd)

However, this method was found to be unrealistic when applied to the 1960 data, particularly in the younger age-groups.

Arnesen's method was followed to the extent that the percentage having vocational education was divided between the thirteen types declared. The remaining percentage was then divided between the four levels of general education, but under assumptions differing from those proposed by Arnesen.

The types of vocational education declared in the 1960 census may be broken down into those requiring the "examen artium", which is awarded after three years attendance at the gymnasium, and those requiring only the completion of compulsory education. Consequently the percentage having completed the former type of vocational education was subtracted from the percentage declaring that they have completed gymnasium.

The remaining percentage having no vocational education was then divided between the other three levels of general education in the same proportions as given in the general education table.

The years of education attributed to each level of education are as follows (on the basis of the OECD Classification of Educational Systems):

General Education

Primary school	7 years
Continuation school	8 years
Middle school	9 or 10 years
High school	12 or 13 years

Vocational Education

Agricultural school (Landbruksfagskoler)	9 years
Workshop schools, etc. (Bedrifts-og verstedskoler)	8,9,10 years
Other vocational schools for industry (Andre yrkesskoler for händwerk og industri)	8,9,10 years
Journeymen's tests (Svenneprøver)	8 years
Technical schools (Tekniske skoler o.l.)	9,11 years
Commercial schools (Handelsskoler)	8,10 years
Commercial secondary schools (Handelsgymnas)	10,12 years
Seamen's schools (Sjømannskoler)	8,9,10 years
Teachers training schools (Laererskoler)	14 or 15 years
Nursing schools, etc. (Sykepleieskoler o.l.)	14 or 15 years
Domestic science schools (Husmorskoler)	8,10 years
Universities, etc. (Universiteter og høgskoler)	15-20 years

The number of years attributed to each type of vocational education shown above is that corresponding to seven years compulsory education. In effect the duration of compulsory education is now 9 years in most municipalities. Thus in the younger age groups the length of a course of vocational education is assumed to be based on 9 years'general education.

Journeymen's tests (Svenneprøver) are usually part-time courses of 1 day per week over three or four years. This was counted as 1 year after compulsory schooling.

NORWAY (cont'd)

Those leaving schools where the length of course is variable between 1 and 3 years were distributed equally between 1,2 and 3 years following compulsory schooling.

The length of time spent on a first degree at university is variable between 3½ and 7½ years. Those persons having completed university were distributed between 3 and 8 years of post-general schooling using the Norwegian Educational Statistics 1965-66, Vol. V (Undervisnings Statistik 1965-66 Hefte V), Statistik Sentral byra, Oslo 1967, Table 2, p.14 showing new entrants to university in 1963, 1964 and 1965 by sex and course of study. The average number of students starting each course over those three years as a percentage of total new entrants was derived, and used to distribute university graduates between the number of years of study required to complete each course (taken from OECD Classification of Education Systems, Norway, Paris 1972.

Since these data include persons still in the education system who are classed by the last stage of education completed, it was assumed that in the 15-19 year age-group a similar percentage of the population had completed only primary schooling as in the 20-24 age group, the rest being assumed to have completed a further one or two years'study (i.e. part but not the whole of the three-year "Realskole" course). Of those declared as having completed Realskole, it was arbitrarily assumed that 10% had completed the first year of gymnasium. In the 20-24 year age group, it was assumed that of those declared as having completed gymnasium, some 50% had proceeded to further studies, those 50% being divided equally between 13, 14, 15, 16 and 17 years of study.

PORTUGAL

Sources:

Recensamento geral de Popolaçao 1960 Tome 3, Volume 2 Istrucao, Table 1. This table refers to the home population by education and home population no longer following a course of instruction, by the level of education and the course possessed, by age (year by year up to 29 years inclusive, and thereafter in five-year age-groups) and by sex - overall total. ("Populaçao residente segundo a instruçao e populaçao residente que nao frequenta um ensino segundo grau de ensino e o curso possuido, por idades (ano a ano até dos 29 anos inclusive, e posteriormente por grupos quinquenais) e sexos - Total geral").

The preliminary results and a five per cent sample from the census of the 15th December 1970 are now available, and the 20 per cent sample results are due for publication at the end of July 1973.

Methodology:

The census breaks down the population no longer in full-time education by sex, age (for each year of age from 7 to 29, and in five-year age-groups from 30 years of age onwards) and the terminal education categories below:

1. Illiterate (nao sabia ler) - 0.5 years
2. Literate not following a course of education nor possessing any diploma (sabia ler sem frequentar nem possuir um grau de ensino) - 3 years.
3. Primary (primario) 80 per cent 5 years, 20 per cent 6 years
4. Secondary (secundario):
    - a) Grammar and church schools (Liceal eclesiastico) - 11 years;
    - b) Technical schools (Tecnico) - average 9 years;
    - c) Teacher training schools (Normal) - 11 years;
    - d) Artistic schools (Artistico) - 7 years;
    - e) Others (Outros) - insignificant proportion.
5. Higher (superior)
    - a) Arts (Letras) - 16 years;
    - b) Fine Arts (Belas-Artas) - 15 years;
    - c) Law (Direito) - 16 years;
    - d) Social sciences (Ciencias sociais) - 16 years;
    - e) Exact and natural sciences (Ciencias exactas e naturais) - 16 years;
    - f) Engineering (Engenharia) - 17 years;
    - g) Medical sciences (Ciencias relativos à medicinia) - 50 per cent 17 years, 35 per cent 15 years, 15 per cent 14 years;
    - h) Agriculture (Agricultura) - 16 years;
    - i) Others of scientific nature (Outros de caracter cientifico) - 16 years;
    - j) Others unspecified (Outros n.e.) - 15 years.

PORTUGAL (contd)

The years attributed to each category were taken from Estatisticas da Educaçao, Portugal, 1970. The notes to the census table define the first two classes above as those who have no schooling and those who have incomplete primary school. An average number of three years for those not having completed primary school was assumed on the basis of enrolment statistics for the earliest year available (1950).

Percentage enrolment in full-time education at primary school level 1950

Age in Years	Males	Females
7	70.3	67.3
8	77.5	73.0
9	77.5	72.3
10	72.5	63.0
11	61.0	46.6

Source: U.N. Demographic Yearbook 1956.

Since the primary school course lasts a minimum of four years, but the rate of repetition is rather high, it is difficult to estimate precisely the proportions of these leaving after age 10 who have completed primary school. Thus 3 years is a somewhat arbitrary estimate.

The normal length of primary school is four years. However, the extent of repetitions necessitates some adjustment. In 1956-57, the percentage distribution of male pupils in each primary grade by 1st, 2nd, 3rd or 4th enrolment in that grade were as follows:

		Grades			
Enrolment	Total	1	2	3	4
1st	75%	65%	78%	77%	82%
2nd	21%	26%	18%	21%	17%
3rd	3%	6%	3%	2%	1%
4th	1%	3%	1%	negl.	negl.
Total	100%	100%	100%	100%	100%
Equivalent Years	1.3	1.5	1.3	1.2	1.2

Source: Estatisticas da Educaçao, Portugal, 1956-57.

Effectively 5.2 years were spent in primary school. Therefore of those declaring that they have completed primary school, 80 per cent were assumed to have 5 years and 20 per cent 6 years.

At the level "superior", category 5(g) above includes medicine, pharmaceutics and the Escola Tecnica de Enfermeiras (nursing school). The effectives in each course as given by the national education statistics for 1956-57 were used to distribute the total between the required years for each course.

SPAIN

Source;

Censo de la Poblacion de Espana 31/12/70. Total Nacional. Tomo III. Caracteristicas de la Poblacion. Table 27. This table refers to the population 14 years of age and over no longer following a course of studies, by sex, age and the highest level of education attended. ("Poblacion que no esta cursando estudios según el sexo, la edad y la clase de ensenanza mas elevada recibida"). The Mediterranean Regional Project Country Reports, Spain, OECD, Paris 1965, provides information relating to the educational structure and age of students at each level which was used to formulate distributions of persons at each level by years of schooling in the absence of detailed historical enrolment data.

Methodology

The census shows for each sex and five years age-groups, the number of persons having completed, or having started, each of five levels of education which are subclassified by type of school or field of study.

At the primary education level, the types shown are pre-school education, primary (compulsory schooling), pre-vocational course ("iniciacion profesional"), special education for handicapped pupils, and literacy campaigns. The great majority (99.9%) of persons in this category attended compulsory schooling, which lasted six years for most of the period in question. Very little data is available from which repetition and drop-out rates can be ascertained. The Spanish primary education statistics (Estadistica de la Ensenanza Primaria) included a distribution of students by grade and single year of age for the first time in 1968/69. Previously the distribution by single year of age showed only type of school. Most of the data available describe the period after 1964 when the school system was reformed, and compulsory education extended to 8 years. Since the primary school certificate was of comparatively minor importance in Spain, it seems probable that few of the persons who completed only primary education continued in school beyond the age at which compulsory education terminated. We have therefore assumed that of those persons having completed primary compulsory shcooling, 90% had 6 years of education and 10% 7 years. In the absence of data relating to drop-outs at this level, persons with incomplete primary education were equally distributed between 1, 2, 3, 4 and 5 years of schooling. The other types of primary education were allocated the following number of years of schooling:

	Complete studies	Incomplete studies
Pre-school education	1	-
Iniciacion professional	8	7
Special education	As compulsory primary	
Literacy campaigns	2	1

SPAIN (cont'd)

At the second grade, first cycle level the major type is the Bachillerato Elemental (General y Tecnico); we assumed that 80% of persons had 8 years and 20% 9 years of education. All other types of completed first cycle secondary education were distributed as follows : 10% 10 years, 50% 11 years, 30% 12 years, 10% 13 years. Persons with incomplete Bachillerato Elemental were equally distributed between 5, 6, 7 and 8 years of schooling. Those with other forms of incompleted first cycle secondary education were equally distributed between 8, 9 and 10 years.

The major class at the second cycle secondary level is the Bachillerato Superior, including the pre-university year. We assumed that 50% of persons at the level had 10 years, 30% 11 years, and 20% 12 years. Persons having completed other forms of second cycle secondary education were distributed as follows : 10% 12 years, 50% 13 years, 30% 14 years, 10% 15 years. Persons with incomplete Bachillerato Superior were equally distributed between 8, 9 and 10 years of schooling. Those with other types of incompleted second cycle secondary education were equally distributed between 10, 11 and 12 years.

Most of the courses listed at the non-university third level require a total of fourteen years of schooling, the exception being "Bellas Artes", which requires 17 years, and "ensenanza normal"; which prior to reforms in 1965 required only 11 years for a primary school teacher. However due to the "numerus clausus" system, most persons passing technical college entrance examinations had spent several years preparing for it. The distributions shown below may well underestimate the length of studies at each level.

Completed studies

Ensenanza normal : 40% 11 years, 40% 12 years, 20% 13 years
Bellas artes : 40% 17 years, 40% 18 years, 20% 19 years
All others : 20% 14 years, 30% 15 years, 30% 16 years, 20% 17 years

Incomplete studies

Ensenanza normal : 40% 9 years, 40% 10 years, 20% 11 years
Bellas artes : 20% each 12, 13, 14, 15 and 16 years
All others : 25% each 11, 12, 13, 14 years

Most university first degrees (licenciado) required 5 years of study based on the ten-year Bachillerato superior and a one-year pre-university course. Medical studies required [illegible] years. However, as with the non-university higher studies, students often pass several years preparing to enter the university, and in addition few students complete the university course without repeating at least one year of it. Again the distributions below are based on very poor data regarding the age of students at the university level.

SPAIN (contd)

Completed studies

Medical studies: 20% each 18, 19, 20, 21, 22 years
Others : 20% each 16, 17, 18, 19, 20 years

Incomplete studies

Medical studies: 15% each 12, 13, 14, 15, 16, 17, 10% 18 years
Others : 20% each 12, 13, 14, 15, 16 years

SWEDEN

Source:

Lena Johansson, Utbildning - empirisk del. Läginkomstuttenringen, Allmänna Förlaget, Stockholm 1971.
Table 7.101. This table refers to the population distributed by years of schooling and average years of schooling and age-groups. General and vocational education courses are included, where the latter is full-time and of at least one year's duration. Those still studying in 1967 are included, and are classified by the number of complete school years of education received. ("Andel med olika lång utbildningstid och medelutbildningstid i skila alderskalasser. Endast skol - eller yrkesutbildning pa heltid, som varat minst ett ar ingar. Studerande under 1967 redovisade pa samma sätt som andra, elter antal hela skolar").

Table 7.103. This table gives the average years of education by age and sex for those who have completed Schooling and those still studying in 1967 ("Medelutbildningstider elter alder och kön samt för studerande och icke studerande under 1967").

Folk och bostadsräkningen 1970. Del 10. Näringsren, yrke och utbildning i hela riket, länen m.m. Sveriges Officiella Statistiki, Statistiska Centralbyran, Stockholm 1974. Table 16. This table refers to the total population aged 16-59 distributed by highest level of education, sex, age and marital status. ("Befolkningen : åldern 16-59 år efter sysselsättning, högsta utbildning, kön, alder och civilstand i hela riket").

Methodology:

The 1967 results were derived directly from the tables cited in the first two paragraphs above. They are part of a 1967 labour force survey, and thus refer to the labour force. As indicated in the titles of the tables, both general and vocational education are included, where the latter includes only full-time courses of at least one year's duration. Those still studying are included, and were attributed the full number of years' education received before the current year of study.

The 1970 census data show the population by sex, five-year age-groups (except 16-24), and the following types of education (translations as given in pp.212-214 of source document).

A. Vocational education not given.

1. Elementary school 7 years or less.
2. Elementary school 8 years or discontinued studies at girls' municipal school or junior secondary school.
3. 9-year compulsory comprehensive school, elementary school 9 or 10 years, comprehensive school (9-year experimental), folk high school.
4. Junior secondary school, girls' municipal school or discontinued studies at senior high school.
5. Senior high school.
6. Continuation school social sciences line.

B. Vocational education given.

1. Aesthetic, liberal arts and religious education.
2. Pedagogical education.
3. Office, trade; economics; social sciences education, etc.
4. Education for industry, crafts, and skilled trades, technology and natural sciences.
5. Education for transport and communication.
6. Education for nursing professions.
7. Education for agricultural and horticultural professions, and for forestry and fishing.
8. Education for service, civil guard and military professions.
9. Undefined education not possible to assign to any particular major group.

Each type of vocational education is subclassified into:

(i) Upper-secondary education 2 years or less.
(ii) Upper-secondary education longer than 2 years.
(iii) Post-secondary education 2 years or less.
(iv) Post-secondary education longer than 2 years.
(v) Research education.

In 1936 the length of compulsory education was raised from 6 to 7 years with the possibility of an extension to 8 or 9 years. The present 9-years'compulsory education was adopted in 1962 after ten years of experiment and was general by 1968. Prior to the adoption of the 9-year comprehensive school several patterns of primary and secondary courses were in use concurrently - Realskole courses of 4, 5 or 6 years were based on primary school courses of 3,4,5 or 6 years, making a total of 9 or 10 years in Folkskole and Realskole. Gymnasium courses were generally of 4 years, based on the penultimate year of the Realskole, making a total of 12 years. In 1927 an alternative three-year course was introduced, based on 6 years in Folkskole and 4 years in Realskole, making a total of 13 years.

The attribution of years of schooling to each type of general education given below is based on the normal requirements in the period in which each age-group was in school. For the first category, elementary schooling of 7 years or less, the percentages having 5, 6 or 7 years are based on the 1967 data. For the fourth category the percentages are based on approximate proportions of students taking 9 or 10 year realskole courses and of females attending the Flikskole, which had a duration of 10 years before 1927 and 11 years thereafter.

Level	Years of schooling	Age-groups 16-24 M	F	25-29 M	F	30-34 M	F	35-39 M	F	40-44 M	F	45-59 M	F
A1	5	1		2		2		2	2	3	3	3	
	6	1		2		15		40	50	45	65	70	
	7	98		96		83		58	48	62	32	27	
A2	8					100							
A3	9					90							
	10					10							
A4	9	80	60			50	30			80	50		
	10	10	10			40	25			10	45		
	11	10	30			10	45			10	5		
A5	12	100				60				100			
	13	0				40				0			
A6	11					100							

Within each field of study of vocational education there are numerous courses of varying lengths offered at both secondary and higher levels. We have assumed that persons having upper secondary education of two years or less are equally distributed between 10 and 11 years of schooling, those having more than two years between 12 and 13 years of schooling, and those with post-secondary education of 2 years or less between 13 and 14 years of schooling. Some indication of the qualifications covered by the fourth class, more than two years of post-secondary education, is given in Table 13 of Part 10 of the census, which shows for each sex and type of vocational education, the number of persons holding each of the major qualifications in the class. The present requirement in years for each of these courses was taken from OECD - Classification of Educational Systems - Sweden.

B.1.iv			50% 15 years, 50% 16 years
B.2.iv			15 years
B.3.iv	(	Males	45% 15 years, 45% 16 years, 10% 17 years
	(	Females	40% 15 years, 40% 16 years, 20% 17 years
B.4.iv	(	Males	20% 15 years, 50% 16 years, 30% 17 years
	(	Females	40% 15 years, 45% 16 years, 15% 17 years
B.5.iv			15 years
B.6.iv		Males	15% 16 years, 35% 17 years, 50% 19 years
		Females	20% 16 years, 40% 17 years, 40% 19 years
B.7.iv			16 years
B.8.iv	)		50% 15 years, 50% 16 years
B.9.iv	)		

Most of the qualifications included at this level are of the first degree level. Higher degrees before 1969/70 generally consisted of individual research work, requiring 2 or 3 years beyond the first degree for the "licenciat examen", and the equivalent of a further 2 or 3 years'full-time research for the "doktorsgraden". We have assumed that the persons in the fifth subcategory, research, in all disciplines, were equally distributed between 18, 19, 20, 21 and 22 years of schooling.

TURKEY

Source:

Population Census of Turkey, 24 October 1965. 1% samples results. Publication No. 508. Ankara 1966.

Table 4 "Population, 11 years old and over by last school graduated".
Table 7 "Population, 6 years old and over by literacy".

Methodology:

Table 7 shows the total population in 1965 by sex, ten-year age-cohorts, and literacy. Table 4, shows the literate population by sex, ten-year age-cohorts and the six levels of education shown below with the minimum number of years of schooling required to attain them:

1.	Not graduated (Mezun olmayanlar)	-
2.	Primary school (Ilk okul mezunları)	5 years
3.	Lower secondary school (Orta okul mezunları)	8 years
4.	Lycée (Lice mezunlari)	11 years
5.	Vocational school (Meslek okulu mezunları)	9-13 years
6.	Higher school and faculty (Yüksek okul ve fakülteler)	13-17 years

The educational system in Turkey has undergone numerous changes in the period in which the population over 11 in 1965 were in school. Very little information was available to the secretariat on drop-out, repetition and attendance rates. The assumptions made in adjusting the data for these factors have in the most part been drawn from The Mediterranean Regional Project, Country Reports, Turkey, OECD Paris 1965, notably from Chapter IV. "The Present Educational System" and Appendix A. However it should be noted that these adjustments are not based on detailed data. The years of schooling attributed to each level of schooling are as follows:

1. Illiterates : 50% 0 years, 50% 1 year.
2. Not graduated : 25% each 2,3,4 and 5 years.
3. Primary school : 70% 5 years, 20% 6 years, 10% 7 years.
4. Lower secondary school : 80% 8 years, 20% 9 years.
5. Lycée : 80% 11 years, 20% 12 years.
6. Vocational school : 5% 9 years, 10% 10 years, 60% 11 years, 10% 12 years, 15% 13 years.
7. Higher school and faculty -
   males : 5% 14 years, 5% 15 years, 65% 16 years, 15% 17 years 10% 18 years.
   females : 5% 14 years, 5% 15 years, 75% 16 years, 5% 17 years, 10% 18 years.

At the last two levels, the percentages having each number of years of schooling was based on the length of various courses as given in OECD - Classification of Educational Systems, Turkey and the approximate proportions following each course in recent years, derived from the Turkish national education statistics.

UNITED KINGDOM

Sources:

Census 1951 England & Wales, General Tables, Table 43, p. 159. "Occupied population in 9 age sections each classified by 11 terminal education ages".

Census 1951, Scotland, Occupations and Industries, Table 17 p.652. "Occupied population classified according to 11 terminal education ages, (a) Scotland by 9 age-sections and (b) Administrative, etc., Areas by all ages".

Census 1961, England & Wales, Education Tables, Table 1, "Population aged 15 and over in 9 age-sections classified by 16 terminal education age-groups".

Census of Northern Ireland 1961. General Report. Table 21. "Education: Terminal Education Ages of Persons 15 years and over by Sex and Age-group".

For years before 1951, no official data are available, but estimates were made by Rose Knight, Educational Stock of the British Labour Force, OECD (mimeographed), Paris, 1963, who uses 1951 census data and enrolment data to estimate average years of education for the British work force in 1931, 1941, 1951 and 1961. (Some of these data are cited in Denison's article in The Residual Factor and Economic Growth, OECD, Paris 1964.)

The General Household Survey. Introductory Report. Office of population censuses and surveys. Social Survey Division H.M.S.O. 1973.

Methodology:

Data from the 1951 censuses of England, Wales and Scotland, and the 1961 censuses of all United Kingdom countries were available. For 1951, the data were for the active population and for 1961 for the total population. In both cases the data relate to years of schooling; for 1951 by year from less than 8 to 17 and more and for 1961 from less than 8 to 20 or more. Those having 17 or more years of education in 1951 were distributed between 17, 18, 19 and 20 years in the same ratio as those in the cohort 10 years older in 1951.

The General Household Survey. Chapter 7. Education includes several tables showing the population by age-group and broad level of education cross-classified by socio-economic group, occupation, earnings and sex.

U.S.A.

Sources:

The major source of data is the United States Census of Population 1960. Data for 1950 and 1960 are given in Volume 1, Part 1 United States Summary: Detailed Characteristics, Table 173 "Years of school completed by persons 14 years old and over, by age, colour, and sex, for the United States, 1960 and 1950, and for urban and rural areas 1960" (1).

Data are now available from the 1970 census, in U.S. Bureau of the Census, Census of Population 1970, Detailed Characteristics, Final Report PC(1)-D1 United States Summary, Table 199, p. 627. "Years of School Completed by Persons 14 years old and over by race, sex and age : 1970".

An alternative source of data is the Current Population Report of the Bureau of the Census, which has reported on educational attainment periodically since 1947. The most recent data on the educational attainments of the population and labour force were published by the Bureau of the Census in Current Population Reports, Population Characteristic , Series P-20, No. 243, November 1973. This report gives a breakdown of the population by detailed age-groups, sex and years of school completed (thirteen classifications) shows a breakdown of the population by single year of age from 14 years to 29 years, and the age-groups 30 to 34, and 35 and over, by each number of years of school completed from 0 to 17 years or more and by sex. This report was drawn from the Current Population Survey of March 1972. More limited data from this survey specific to the labour force were published in the Monthly Labour Review, November 1972, and reprinted in Special Labour Force Report No. 148, Educational Attainment of Workers, March 1972. This is the tenth in a series of reports on the educational attainment of workers. Other sources which have made analytic use of the data are: E.F. Denison, The Sources of Economic Growth in the United States and the Alternatives Before Us, Committee for Economic Development, New York, 1962.

E.F. Denison, Why Growth Rates Differ, Brookings, Washington, 1967.

E.F. Denison, The Sources of Growth Accounting in the United States, 1929-1969, Brookings, scheduled for publication in 1974, Appendix I, "The Labor Input Index for Education".

U.S. Bureau of the Census, J.K. Folger & C.B. Nam, Education of the American Population, 1960 Census monograph (1967).

G.S. Becker, Human Capital, A Theoretical and Empirical Analysis with Special Reference to Education, New York, Columbia University Press, for National Bureau of Economic Research, 1964.

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(1) In fact the census questionnaire asks respondents for the highest grade completed, and this is then converted into equivalent years of education by the census authorities.

U.S.A. (contd)

Methodology:

The census data for 1950, 1960 and 1970 group those having one or two years of education together, similarly those having three or four years, and those having five or six years. It was assumed that the average number of years of education of persons in these classes was 1.5, 3.5 and 5.5 respectively.

The highest class of education in the 1950 census was 16 or more, and in the 1960 and 1970 censuses and 1972 survey 17 or more. Those having 17 or more years of education in 1960 and 1970 were assigned 17.5 years, i.e. equally distributed between 17 and 18 years. Those having 16 years or more education in 1950 were distributed between 16, 17 and 18 years in the same ratio as those having 16 or more years in the age-cohort ten years older in 1960.

Data referring to the active population in 1972 were treated in the same manner. When three or four years of education were grouped together, these persons were distributed between the appropriate years in the same proportion as for corresponding years in the total population of the same sex. In this study we have used mean years of schooling as an indicator of educational attainment. An alternative procedure is to calculate median years of schooling, i.e. that value which divides the population into two equal parts, one-half having completed more and the other half less years of schooling than the median. The latter measure is used by the U.S. Bureau of the Census in the Special Labor Force Reports on Educational Attainment. In calculating median years of schooling, the Bureau of the Census assumes that persons declaring themselves to have completed a given number of years of education, e.g. ten years, have an amount of education ranging evenly from 10.0 to 10.9 years. This implies that the typical pattern for those leaving education is to drop out in the course of the academic year after the one they claim to have completed. The effect of this assumption is to overstate the number of years of education completed by those having left the education system, most of whom probably terminated schooling at the end of the grade stated. On the other hand, this procedure understates the number of years completed by those still in the education system, who have generally completed almost the whole of the instruction year following their highest stated grade at the time of the census which is held in April or May. The tendency of this procedure to overstate the amount of education in the U.S.A. was noted by Bertram (1) in his U.S.-Canadian comparisons. Our own procedure is different from that of the U.S. authorities and resembles the procedures used for other countries, where it was assumed that a person having completed ten years of education had only ten years and no more.

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1) G.W. Bertram, The Contribution of Education to Economic Growth, Economic Council of Canada, Ottawa, June 1966.

Appendix II

Various limitations in the coverage of census and survey data on educational attainment prevent more sophisticated analysis of the relationship between the structure of education and patterns of change in economic and social structures.

It is at the extremes of the distribution that the coverage is weakest. Appendix tables A and B show the percentage of persons having 16 or more years of education and 8 years or less of education.

It is reasonable to assume that the true distribution extends for all countries from 0 to 24 or more years of education, although the percentages at the extremes would be very small in some cases. Appendix table C shows the degree of detail in which census tabulations were published.

The presentation used in table C represents an alternative approach to the foregoing discussion in terms of years of schooling. The UNESCO office of statistics presents census data on educational attainment according to the following scale:

1. No schooling
2. Uncompleted primary education
3. Completed primary education
4. Entered second level, first cycle
5. Entered second level, second cycle
6. Post-secondary education

Of the 23 OECD Member countries for which data in some form are now available, only the data for Ireland and the U.K. proved entirely unsuitable for this approach. However the simple six-level classification proposed by the UNESCO office of statistics was not applicable to the majority of data since, whereas some countries provided data by highest level attended, others provided data by highest level completed. We have therefore used a more detailed breakdown of 14 categories in table 18 as follows:

I	No schooling
II	Illiterate
III	Attended primary school
IV	Completed primary school
V	Attended first-cycle secondary level
VI	Completed first-cycle secondary level
VII	Attended second-cycle secondary level
VIII	Completed second-cycle secondary level
IX	Attended post-secondary education
X	Completed post-secondary education
of which	a. Non-university higher education

b. University first-degree level

c. University postgraduate studies

XI Not attributable by level

For those countries where data show both those who attend and those who complete a level, categories III, V, VII and IX contain only those who did not complete the level. Only where it is clearly specified that persons have completed a level are they shown in categories IV, VI, VIII and X. For Australia, New Zealand and the U.S.A. where data give a distribution by single grade at some levels, persons completing the final grade of the level are assumed to have completed the level.

For several countries details of vocational education were given by field of study rather than level of education, and for most of these countries this information was given in a separate table, so that this type of education could not be included in the percentage breakdown by level of education. The percentages concerned are shown in category XI, and are bracketed where they do not form part of the percentage total. The type of education included is specified below.

Galtung(1) and his associates have used data of the type shown in table C to show dispersion in education between persons, using what appears to be an arbitrary weighting system. As more detailed data become available, this type of analyses promises to provide valuable information about socio-economic development.

A further distinction might be made at both secondary and higher levels between types of education or disciplines of study. Very few of the countries for which data is presented here have provided detailed information in this field, and such data as are available are incomparable.

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1) See J. Galtung et al. Educational growth and Educational Disparity UNESCO, 1973.

Appendix Table A

Percentage of total population aged 15 and over having 16 or more years of education

		16	17	18	19	20	21	22	23	24
Belgium(a)	1961	2.8	2.1	1.6	1.1					
Canada	1971	5.2	3.4	1.8	0.6					
Denmark	1961/2	2.1	1.4	1.2	0.6					
Finland(b)	1970	2.7	2.1	1.2	0.2	0.1				
France	1968	3.0	2.1	1.5	1.1	0.8	0.6	0.4	0.3	0.2
Germany(c)	1970	2.8	1.7	0.5	0.3					
Greece	1971	2.4	0.7	0.3						
Ireland	1966	2.2	1.5	1.1	0.7					
Italy(a)	1961	1.7	1.6	1.0	0.4	0.2				
Japan	1970	5.2	1.0	0.2	0.04					
Netherlands(a)(d)	1960	1.6	1.6	1.6						
New Zealand	1966	2.0	1.2	0.6	0.3	0.1				
Norway	1960	1.7	1.6	1.3	0.6	0.02				
Portugal	1960	0.6	0.2							
Spain	1970	1.7	1.3	0.9	0.6	0.4	0.1	0.1		
Sweden(e)	1970	2.0	0.8	0.4	0.3	0.1	0.1	0.04		
Turkey(f)	1965	0.7	0.2	0.1						
United Kingdom	1961	2.5	1.7	1.2	0.8	0.6				
United States	1970	8.8	3.6	1.8						

(a) Aged 14 and over.
(b) Aged 25 and over.
(c) Total population having left school.
(d) Active population.
(e) Aged 16-59.
(f) Aged 11 and over.

Appendix Table B

Percentage of total population aged 15 and over having 8 years or less of education

		8	7	6	5	4	3	2	1	0
Belgium (a)	1961	66.2	30.7	3.4						
Canada	1971	37.2	23.5	15.3	11.2	7.1	4.1	2.5	1.6	1.2
Denmark	1961/2	53.9	44.9							
Finland (b)	1970	65.7	50.8	35.1	11.8					
France	1968	65.5	26.3	3.1	1.9	1.8	1.7			
Germany (c)	1970	55.8	29.5							
Greece	1971	80.5	78.6	67.5	43.3	36.2	26.6	20.4	16.2	8.1
Ireland	1966	54.6	4.0	0.8						
Italy (a)	1961	84.8	82.5	75.5	42.0	39.3	24.5	18.1	9.2	4.6
Japan	1970	34.9	11.6	11.6	0.8	0.8	0.8	0.8	0.8	0.8
Netherlands (a,d)	1960	56.1	52.2	48.4						
New Zealand	1966	25.3	3.1	2.0	1.1	0.6	0.2	0.1	0.01	0.0
Norway	1960	75.7	58.3							
Portugal	1960	95.8	95.8	95.8	89.9	66.2	66.2	37.0	37.0	37.0
Spain	1970	92.7	90.7	83.8	24.8	21.7	19.1	16.5	13.8	11.1
Sweden (e)	1970	47.7	39.5	21.4	1.0					
Turkey (f)	1965	95.9	93.3	90.4	84.6	60.9	57.4	54.0	50.5	25.3
United Kingdom	1961	9.4	2.8	0.9						
United States	1970	26.3	13.8	9.1	6.7	4.4	3.3	2.2	1.8	1.4

(a) Aged 14 and over. (b) Aged 25 and over. (c) Total population having left school.
(d) Active population. (e) Aged 16-59. (f) Aged 11 and over.

Appendix Table C

PERCENTAGE DISTRIBUTION OF TOTAL POPULATION

Level	Austria[a] 1951	Austria[a] 1961	Austria 1971	Austra-lia b 1971	Belgium[a] 1961	Canada[c] 1941	Canada[c] 1951	Canada 1961	Canada 1971	Denmark 1961/2
I	-	-	-	0.8	-	2.7	2.0	1.6	37.2	-
II	-	-	-	-	-	-	-	-		-
III	93.5	93.4	85.0	7.5	68.4	37.6	48.9	45.2		51.1
IV			-	16.5	-	18.5	-	-		-
V			12.9	21.7	12.3	34.2	36.0	47.2	53.0	7.5
VI				22.3						4.1
VII				11.6	15.4					
VIII	4.8	4.8		14.3	-					0.9
IX	-	-	-	-	3.9	6.3	7.8	3.1	5.1	0.4
X	1.7	1.8	2.1	5.2	-	-	-	3.0	4.7	6.1
a	-	-	-	3.2	2.0	-	-	-	-	5.1
b	-	-	-	1.7	1.9	6.3	7.8	6.1	9.8	1.4
c	-	-	-	0.3						
XI	-	-	-	(15.3)j)	-	-	-	-	(15.0)[n]	29.9[k]

Level	Italy[a] 1961	Italy[e] 1961	Italy[e] 1971	Japan 1960	Japan 1970	Netherlands[f] 1960	New Zealand 1966	Norway[g] 1950	Norway[g] 1960
I	-	-	-	3.8	0.8	-	-	-	-
II	3.3	8.3	5.2	-	-	-	-	-	-
III	30.2	34.2	27.1	-	-	-	4.9	89.2	86.1
IV	43.1	42.3	44.3	17.0	56.7	48.4	29.0	-	-
V	-	-	-	-		7.7	31.9	7.2	9.0
VI	10.9	9.6	14.7	50.1		33.4	5.4	-	-
VII	-	-	-	-	-	-	6.8	2.6	3.2
VIII	5.0	4.3	6.9	23.6	33.1	5.3	3.4	-	-
IX	-	-	-	-	-	-	2.2	1.2	1.7
X	1.5	1.3	1.8	5.5	9.3	5.2	6.4	-	-
a	-	-	-	2.8	4.1	3.6	4.1	-	-
b	1.5	1.3	1.8	2.7	5.2		4.1	1.2	1.7
c						1.6	0.4		
XI	-	-	-	-	-	-	-	(19.2)[n]	(19.9)[n]

Key

I	No schooling
II	Illiterate
III	Attended primary school
IV	Completed primary school
V	Attended first cycle secondary education
VI	Completed first cycle secondary
VII	Attended second cycle secondary education
VIII	Completed second cycle secondary education
IX	Attended post secondary education
X	Completed post secondary education
a	Non university higher education
b	University first degree level
c	University post graduate studies
XI	Not attributable by level

) In some cases, the a b c breakdown refers to X, in others IX, and in Denmark, New Zealand and Spain it refers to both

Appendix Table C

AGED 15 AND OVER BY LEVEL OF EDUCATION

Finland 1950	Finland 1960	Finland 1970	France 1968	Germany[d] 1964	Germany[b] 1970	Greece 1951	Greece 1961	Greece 1971	Iceland 1960	Level
-	-	67.3	-	-	-	-	-	-	-	I
-	-		-	-	-	26.0	19.6	16.2	-	II
27.5	88.2		-	85.4	73.0	37.5	27.0	17.4	-	III
64.0	-		56.7			30.0	42.9	50.7	65.2	IV
5.5	7.6	-							-	V
		19.5	24.6	8.3	9.3	5.4	8.4	12.4	10.9	VI
			-	0.3	-				-	VII
1.8	2.5	8.3	13.8	1.9	12.4				1.7	VIII
-	-	4.9	-	3.4	-	-	-	-	-	IX
1.2	1.7	-	4.9	-	5.3	1.5	2.1	3.3	3.1	X
-	-	2.2	-	0.7	1.5	-	1.1	1.8	1.5	a
1.2	1.7	1.0	-	2.7	3.8	-	1.0	1.5	1.6	b
		1.6								c
-	(10.9)[l]	-	-	(8.0)[m]	-	-	-	-	19.0[n]	XI

Portugal 1960	Spain[e] 1960	Spain 1970	Sweden[h] 1970	Switzerland[b] 1960	Turkey 1965	USA[a] 1950	USA[a] 1960	USA[a] 1970	Level
-	4.0	11.5	-	0.2	-	2.2	1.9	1.4	I
37.9	16.4	-	[illegible]	-	50.5	-	-	-	II
29.0	77.8	12.9	39.6	65.5	13.8	23.2	18.2	12.5	III
29.0	-	64.6	-	-	28.9	19.3	16.6	12.5	IV
3.3	4.9	1.7	8.1	24.9	-	20.8	23.4	23.6	V
		3.1	15.3	-	3.3				VI
		0.5	30.0	5.8	-				VII
		2.2	-	-	2.7	21.5	24.5	29.7	VIII
0.8	1.0	0.2	6.9	3.5	-	12.9	15.4	20.3	IX
-	-	3.2	-	-	0.8	-	-	-	X
-	0.2	2.0	2.8	0.9	-	-	-	-	a
-	0.8	1.4	3.9	2.6	-	-	-	-	b
-			0.2		-	-	-	-	c
-	-	-	-	-	-	-	-	-	XI

Notes

- - Denotes no information
- () Denotes figure not included in percentage total
- a Aged 14 and over
- b Total having left school
- c IX includes small percentage enrolled in 13th grade of primary/secondary schooling.
- d Active population aged 14-64
- e Aged 6 and over
- f Active population aged 14 and over
- g Continuation school, which accounted for 9.3 per cent of persons in 1950, is included at primary level.
- h Aged 16-59
- j Trade level certificate
- k Vocational training at secondary level
- l Vocational training other than university
- m Vocational schools included in VIII in 1970
- n Vocational training at all levels

Country source notes for Table C

AUSTRIA

1951	Ergebnisse der Volkszählung vom 1. Juni 1951 Heft 14. Textband p.40.
1961	Volkszählungsergebnisse 1961. Heft 13. Table 20. p.77.
1971	Ergebnisse der Volkszählung vom 12. Mai 1971. Hauptergebnisse fur Osterreich. Heft II. Table 12. Osterreichischen Statistischen Zentralamt Wien.

AUSTRALIA

1971	Census of Population and Housing. 30 June 1971. Commonwealth of Australia. Bulletin I. Summary of Population. Part 9. Australia. Commonwealth Bureau of Census and Statistics. Canberra. Ref.no. 2. 83. 9. Table 9.

BELGIUM

1961	Recensement de la Population 31 Dec. 1961. Tome 10 Degré d'instruction de la population. Part I. Royaume, Table III. pp.130-133.

FRANCE

1968	Recensement général de la population de 1968. Formation, Table I. p.37.

GREECE

1951	Résultats du recensement de la population. 7 Avril 1951. Volume II. Table 9.

ICELAND

1960	Population census on December 1 1960. Table 36. p.132 and Table 41. p.150.

ITALY

1971	11° Censimento generale della popolazione 24 Oct. 1971. Volume II. Italia. Parte. Prima. Table 4. p.20.

SPAIN

1960	Censo de poblacion y de viviendas de 1960 Avance de las clasificaciones de la poblacion. Tables II, III.

SWITZERLAND

1960	Recensement fédéral de la population 1960. 1^e Partie 27 eme volume Table 49. p.186-7.

Detailed Classification of Census Categories Used in Table C

AUSTRIA

1951	Volks- haupt-, unter-mittel-schule, Fachschule: III-VII. Mittlere Lehranstalt: VIII. Hochschule: X
1961	Hochschule: X, Mittleschule: VIII, Sonstige: III-VII
1971	Hochschule: X, Hochereschule, Mittlereschule: V-VIII, Lehrausbildung, sonstige: II.

AUSTRALIA

1971	Grades 1-4: III, Grade 5: IV, Grades 6,7: V, Grades 8: VI, Grade 9: VII, Grade 10 less categories IX and X: VIII. Tertiary qualifications excluding degree Xa, Bachelor degree Xb, Higher degree Xc, other qualifications: (XI).

BELGIUM

1961	Enseignement primaire: III, Enseignement moyen, humanités, professionel et technique **terminated** age 16 and under V, same terminated aged 17 and over VII, Enseignement normal primaire VII. Enseignement artistique terminated age 18 and under VII, aged 19 and over IXa, Enseignement technique supérieur, normal moyen et technique IXa, Enseignement universitaire et assimilés IXb, c.

CANADA

1951,61,71	Grades 1-7 III, Grade 8 IV, Grades 9-13 or High school, V-VIII, University IXb, c. Without degree IX, with degree X.

DENMARK

1961/2	7-årig folkeskole III; 8-evt 9 klasse, 2 à 3 år i mellemskole, Folkeskole + efter høj-skole: V; Mellemskole eksamen VI; Realeksamen el tilsvarende eksamen: VI-VII; Studentereksamen: VIII; Akademisk uddanelse Xb, c; Akademisk uddanelse underudd. IXb, c; Anden videre gående udd: Xa; Laelinje, Handelogkontor XI.

FINLAND	
1950	Partial or no primary education III, Primary school IV, Middle school V-VII, Matriculation exam VIII, College or university degree Xb, c
1960	Ilman keskikonlukursia tai ylioppilastutk III, Keski koulurkurssi V-VII; Ylioppilastutkinto VIII; Näistä akateeminen loppututk Xb, c; Other vocational education XI.
FRANCE	
1968	CEP, EFAA, FPA IV; CAP without BEPC, BEPC only VI; BEPC + CAP, Baccalauréat, all types of brevet technique or professionnel VIII, Diplôme supérieur au bac X.
GERMANY	
1964	Volksschule bzw. vor mittlerer Reife III-V, Nach erreichen der mittleren Reife less Ingenieurschole VI, Nach erreichen der mittleren Reife jedoch vor dem Abitur VII, Abitur less Universitäte VIII; Techniker oder Ingenieurschule IXa, Universitäte, Pedagogische Hochschule IXb, c. Berufsfach, Verwaltungs, Fachschule (XI).
1970	Volkschule/Berufschule: III-V; Mittlere Reife VI; Abitur VIII; Berufsfach, Fachschule VIII; Ingenieurschule Xa; Hochschule Xb, c.
GREECE	
1951	Ayant fréquenté l'école moins de 6 ans III, Ayant fréquenté l'école 6 ans et plus IV-V, Personnes possédant un certificat d'études secondaires VI-VIII, Personnes possédant un diplôme d'études supérieures X.
1961,71	Not having finished primary school III; with primary education IV-V; with secondary education VI-VIII; with higher education - university Xb, c, - others Xa.
ICELAND	
1960	Having finished secondary school, lower stage VI. Having finished secondary shcool upper stage VIII. Others IV. University Xb, c. Teachers training Xa; Other vocational education XI.
ITALY	
1961,71	Analfabeti II, Alfabeti privi di titolo di studio and licenza 3^a. elementare: III, Licenza elementara (5^a 1961): IV; Licenza media inferiore VI; Diploma VIII; Laurea Xb, c.

JAPAN

1960,70 Elementary school IV, Junior high school, higher elementary school, Youth-training school VI, Middle school, senior high school VIII, Junior college and higher school Xa, University and post-graduate courses Xb, c.

NETHERLANDS

1960 Primary school IV, Primary school with not completed secondary education V, Junior vocational training and/or secondary modern school VI, Senior vocational training or grammar school VIII; Higher non-university vocational training or university lower degree X a, b. Higher degree X c.

NEW ZEALAND

1966 Primary attendance 1-5 years III; 6 years IV; Secondary attendance 1-2 years V; 3 years VI; Secondary qualifications above school certificate VIII; secondary attendance 4-6 years less VIII-VII; Doctorate, masters' degrees - Xc; Bachelor's, diplomas, other university qualifications Xb; University attendance less Xb and c - IXb; Teacher's certificates, professional and higher trade certificates **Xa**.

NORWAY

1950 Without general education above primary level continuation school - III; Middle school - V; High school less "universiteter og høgskoler" - VII; "Universitet og høgskoler" IXb, c; other vocational education (XI).

1960 Without general education III; with secondary school lower stage V; with secondary school upper stage less university and higher school VII; others as 1950.

PORTUGAL

1960 Ne savait pas lire II; savait lire sans fréquenter ni posséder un degré d'enseignement III; primario IV; secundario V-VIII; superior IX.

SPAIN

1960	No saben leer y escribir II; primarios III; capacitacion professionel, medios V-VIII; tecnicos IXa; universitarios IXb, c; saben leer y escribir, no consta estudios I.
1970	Census categories correspond exactly with classification.

SWEDEN

1970	Folkskole 7 år, kortare III; Folkskola 8 år, avbrutna studier V; Grundskola, folkskola 9 (10) gymnasiestudier VI; Studentexamen etc VII; nya fackskolan social linje VI; Gymnasial utbildning VII; Efter gymnasial utbildning - högst 2 år IXa, langre an 2 år IXb; Forskarutbildning IXc.

SWITZERLAND

1960	Keine schule I; Primarschule III; untere mittelschule V; obere mittelschule VII; Technikum IXa; Hochschule IXb, c.

TURKEY

1965	Illiterate II; Not graduated III; Primary school IV; Secondary school VI; Lycée VIII; Vocational school VIII; Higher school and faculty X.

U.S.A.

1950,60,70	Elementary school grades 1-7 III; grade 8 IV; High school grades 1-3 V-VII; grade 4 VIII; college and university IX.

Inequality in the Distribution of Personal Income(1)

I. Introduction

This paper has two major purposes:

a) to survey the published data on the size distribution of personal income in a number of OECD countries;

b) to point out the shortcomings of currently collected data and propose improvements.

A major conclusion is that in recent years there has been no clear and unambiguous movement towards greater income equality in most of the countries studied. The second conclusion is that summary measures, such as the Gini coefficient, must be interpreted with great care. Different summary measures of the same data may show opposing tendencies. Where possible this paper measures the distribution of income in terms of the shares of decile or quintile groups. Such an approach reveals a wide variety of changes in the structure of decile shares. It is therefore very difficult to make broad generalisations about changes in inequality for all countries examined.

Most countries have very poor data indeed for policy-relevant analysis. If this situation is to be remedied, it will be necessary not only to make a much bigger effort of data collection, but also to broaden the coverage of the data to correspond more closely with meaningful concepts of economic welfare.

II. Methodological problems

Analysis of the Whole Range

It may be argued that there is little interest in analysing the distribution of income in its entirety, because policy is overwhelmingly concerned with those at the extremes of the income spectrum. It is certainly the case that relatively few governments seem to have been concerned with overall equality of income distribution. But that time may be passing. One of the tentative conclusions that may be drawn from the available data is that despite a massive increase in recent years both in general social concern with poverty and more practically in flows of transfer payments in cash and kind, no obviously significant redistribution in income shares to the poor is generally noticeable. Future developments, if they

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1) This paper was prepared by Robin Shannon of the OECD Secretariat.

are to make significant progress, will surely have to tackle in fresh and more vigorous ways the question of how to make an effective shift in favour of the poorer groups (1). Effective equality policy cannot be expected simply to cut the shares of the very richest. The broad middle groups may also have to see their shares decline if the lower groups are to increase their shares. The social and political implications of this are far-reaching. Analysis therefore demands that the distributions be examined in their entirety.

Measurement of Inequality

Inequality is a multi-faceted concept, and there exists a correspondingly wide variety of ways of defining and measuring it (2). It is not however an objective of this paper to go into the issues of measurement at any length. The survey objective of this paper in any event limits it to those measures generally used. An effort has been made to portray data in the form of decile or quintile shares of income. Such a method of presentation is relatively straightforward in interpretation and avoids some of the dangers of over-aggregation inherent in other measures. The Gini coefficient is also used here, though a conclusion of this paper is that it must be interpreted only with extreme caution. Its summary nature inevitably means that important underlying features become masked. It is also subject to possible ambiguities of interpretation (3).

Education and Income Inequality

It is not an objective of this paper to assess the impact of education on income equality. Such an exercise cannot usefully be carried out at the empirical level without the careful specification and estimation of a model of the causal processes tying income and its variability to the numerous hypothetical independent explanatory variables. Such models must include explicit recognition of the dynamic causal interdependence between many of the variables (4). Very few countries have individual-based data sources which can permit even the tentative construction of such models.

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1) See Income Maintenance Expenditures in Selected Countries, 1962 and 1972, OECD, June 1974, (mimeographed) a study of the growth of income maintenance expenditure in a number of OECD countries.
2) See, e.g., A.K. Sen, On Economic Inequality, Clarendon Press, 1973.
3) The Gini coefficient is the ratio of the area between the Lorenz curve and the line of perfect quality to the entire area under this line. The Lorenz curve depicts the cumulated percentage of total income received by any given cumulated percentage of units, the units being ranked in ascending order of income. One problem is that unless Lorenz curves do not cross, an identical Gini coefficient can reflect two entirely different distributions.
4) As examples of the use of such models, see C.Jencks and associates, Inequality : A Reassessment of the Effect of Family and Schooling in America, Basic Books, New York 1972, and S. Bowles, "Schooling and Inequality from Generation to Generation" Journal of Political Economy, Part II, May-June 1972.

No unique problems of principle for international comparison appear to exist which do not also apply, to a greater or lesser extent, within countries over periods of time. But statistical problems, particularly the reconciliation of varying definitions of the income concept and the definitions of the income receiving unit, present formidable difficulties for valid international cross-sectional comparison of pre- and post-tax personal distributions. Further, data for post-tax distributions generally depend on specific studies for different countries in which the crucially important assumptions regarding tax incidence have been diverse. Nevertheless, a section of this document examines some of the major efforts which have been made in recent years to make international comparisons. The final section draws some very tentative conclusions about international trends in personal income distributions.

The Income Concept

Income, defined as the total accretion in economic purchasing power between two points in time, is a relatively straight-**forward** and widely accepted concept in principle. But practical statistical implementation is fraught with numerous difficulties particularly concerning the treatment of capital gains (and losses) and non-pecuniary income. These problems have lead to a wide diversity in national practice.

Capital Gains

A comprehensive definition of income would include net accretions to wealth, but valuation problems make it difficult to take into account all forms of capital gains, whether realised or not. As higher-income individuals also tend to receive a greater share of net capital gains, income statistics which customarily ignore this element inevitably lead to understatement of income dispersion. In the U.S. section, Table 8 shows the development over time of before-tax income shares including realised capital gains. Attempts have been made by various authors to adjust income distribution for differences in net wealth (1). Some of the work is referred to in the U.S. section below. Table 11 in the U.S. section presents summary measures of inequality of three alternative distributions, two of which include adjustments for the annuitization of net family worth. However the general topic of the distribution of capital, both physical and human, is outside the scope of this paper.

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1) See M.K. Taussig, Alternative Measures of the Distribution of Economic Welfare, Industrial Relations Section, Princeton University, 1973, and B.A. Weisbrod and W. Lee Hansen, "An Income-Net Worth Approach to Measuring Economic Welfare" American Economic Review, December 1968. Essentially these studies added the annuitized value of net family worth to current family money income after taxes.

Non-Money Income

Privately-provided "fringe" benefits (1), imputed rent of owner-occupiers, in-kind social transfers such as food stamps, education and health service benefits are important sources of non-pecuniary income in most countries. An ideal procedure would allocate the monetary value of these amongst income recipient-units. The extent to which this is feasible depends both on the "allocability" of the benefits and the possibility of estimating their value in the absence of functioning markets. For some groups these components of a broad income concept may be relatively more important than for others, so that non-inclusion may distort the income distribution picture. Some evidence concerning the impact of including some of these income components is included in the U.S. and U.K. sections.

There is a fairly extensive literature on fringe benefits (2), but it is difficult to calculate their impact because the data are generally too aggregative and/or classified by occupational category rather than income level. The limited evidence suggests that fringe benefits as a percentage of basic salary rise with income level. Table 1 below, which relates only to managerial staff in the U.K. in 1966, shows fringe benefits as a proportion of basic salary to be almost three times as high for the top group as compared with the lowest. The fact that such benefits are largely untaxed must considerably mitigate the effect of nominally progressive income tax structures.

Evidence presented in Table 2 further supports the notion that fringe benefits, at any rate in the U.S.A., are relatively more important for higher income groups. Office employees not only have a higher level of compensation than non-office employees, but they also receive more vacation and holidays, bonuses and retirement programmes. Health programme benefits, as a percentage of their total compensation, were however lower.

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1) There are a **great** number of items under the heading of fringe benefits. They range from pensions, life assurance and stock option schemes to subsidised meals and holidays. In terms of absolute magnitudes, U.S. evidence suggests that in 1967 companies spent about one fifth of GNP on employee benefits. See T.J. Gordon and R.E. Le Bleu, "Employee Benefits 1970-1985", *Harvard Business Review*, Jan.-Feb. 1970.

2) See, e.g. J. Moonman, *The Effectiveness of Fringe Benefits in Industry*, Gower Press 1973; G.L. Reid and D.J. Robertson, (eds), *Fringe Benefits, Labour Costs and Social Security*, George Allen and Unwin, 1965; L.R. Burgess, *Top Executive Pay Package*, Free Press of Glencoe, 1963; R.G. Rice, "Skill, Earnings and the Growth of Wage Supplements", *American Economic Review*, May 1966.

Table 1

Fringe Benefits of Managerial Staff by Income Level, U.K. 1966

Basic Salary (£)	Fringe Benefits as a Percentage of Basic Salary
1,050	11.2
2,200	14.5
3,500	18.7
4,200	21.3
6,250	28.1
7,000 and over	31.1

Source: H. Lydall, The Structure of Earnings, Oxford University Press, 1968.

Table 2

Fringe Benefits for Office vs. Non-Office Employees, U.S.A. 1968

	Fringe Benefits as Percentage of Total Compensation	
	Office Employees	Non-Office Employees
Vacations and holidays	6.1	4.8
Retirement Programmes	6.3	5.9
Bonuses	1.8	0.5
Health Programmes	3.3	4.1
Total Compensation $ per hour	4.62	3.20

Source: Employee Compensation in the Private Non-Farm Economy, 1968, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin M22, 1971.

The changing relative significance of other items, for example the spread of owner occupation or the expansion of in-kind transfer payments, distorts intertemporal comparisons. And international comparisons are clearly affected by the differential treatment of such items in different countries. For certain components, estimates have been made in some countries, though not generally on an official and regular basis. Estimates made in the United States show that allowance for imputed rent of owner-occupiers makes little difference to the variance in (the logarithm of) family incomes, but inclusion of other items such as farm income in-kind and medicare does make an appreciable impact on the dispersion at a point in time (1).

Definition of the Income Receiving Unit

For the majority of countries discussed in this paper, data refer to income received by tax units. Such a definition is not optimal but is usually dictated by the data source. Household surveys do exist in a number of countries, but the problem generally is one of marrying the data generated with tax data sources to develop distributions having cross-classifications with social and economic characteristics. The family or household unit is preferable to the tax unit for many purposes. Nevertheless, the family unit concept does pose problems for an economic welfare interpretation of income distribution statistics (2). Family size and composition clearly have a bearing on the interpretation. In the U.S. and U.K. sections data are presented which go some way to meeting these problems. One potential disadvantage of the family unit is that many low income earners - such as a large proportion of working women, young and old people - live in households which include other income receivers. The effect of their low individual incomes on income dispersion, of great interest in some areas of policy, is masked by their aggregation into a family or household pool.

Nevertheless, the family unit concept can be regarded as the prime economic decision-taking unit in many areas of social and economic life. But on the other hand it is widely recognised that official definitions of the family unit often differ considerably from an ideal measure of an income-pooling consumer unit. This point is separate from the problems of adjustment for differences in family size and composition mentioned above. However this paper in its empirical survey function is necessarily restricted to official data and definitions.

The Time-Period of Analysis

A further problem in analysing income inequality is choice of the appropriate time dimension. A hypothetical society in which, over the life-times of all individuals, total incomes

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1) See Table 9 in U.S. section.
2) See for a discussion of the income unit problem, Lenore A. Epstein, "Measuring the Size of the Lower Income Population" in Lee Soltow, (ed.), Six Papers on the Size Distribution of Income, New York, NBER, 1969.

were equal, would of course be compatible with an unequal distribution of individual income at any particular point in time. But many people would consider such a society highly egalitarian. To the extent that life-time income distributions are publicly perceived as having a lesser dispersion than those observed in particular years or over short periods, political pressures for redistributional policies are probably the less. As has been pointed out (1), the dearth of investigations into entire life-income streams can be ascribed to a lack of data rather than a lack of theoretical sophistication on the part of most researchers. The data permitting the direct evaluation of distribution of life-income experiences adequate for even a single age-cohort do not exist.

There are of course considerable problems in defining what exactly "equality" in life-time income entails. What, e.g., is the appropriate discount rate: and should the rate be the same for all (regardless, e.g., of the riskiness of the occupation)? What constitutes equity when comparing the time-profiles of individual income receipts? Such questions cannot be answered technically; they inevitably involve "political" value-judgements (2). Value judgements are not of course unique to the interpretation of life-time distributions.

Despite the difficulties, work on life-time incomes has been done in a number of countries. The U.S. government has published official estimates of life-time incomes classified by years of schooling and age. Some of these results are included in this paper.

The Redistributive Impact of the Public Sector

For certain countries estimates of "post-tax" income distribution are presented in this paper. An unsettled debate surrounds the definition of the "primary" income distribution; which taxes the researcher should take into account and how he should assess their impact, or incidence, on that distribution; and for a full analysis of the redistributive effect of public policies, how benefits are to be valued and allocated.

Many authorities (3) have denied the meaningfulness of attempting a "total" analysis. An unsettled debate surrounds

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1) M.J. Bowman, "Comment", *Journal of Political Economy*, Part II, May-June 1972.
2) Some of the conceptual issues involved in this topic are reviewed by M.W. Reder in "A Partial Survey of the Theory of Income Size Distribution" in Lee Soltow, (ed.), *op.cit.*
3) See for example C.S. Shoup, *Public Finance*, Weidenfeld and Nicolson, 1969; Alan R. Prest, "The Budget and Interpersonal Distribution" in Institut International de Finance Publiques, *Congrès de Prague*, *The Budget and the Distribution of National Income*, Saarbrücken 1968, and "Statistical Calculation of Tax Burdens" *Economica*, August 1955.

the interpretability of a pre-tax and pre-benefit state of income distribution, with which the distribution adjusted for taxes and benefits might be compared. Is it sensible or useful to hypothesise a "no government" situation? Further, even if an economy with no government can be imagined, adding the "effects" of a series of taxes, each separately arrived at through partial equilibrium analysis on the assumption that the rest of the public finance system remains unchanged, makes the findings of very doubtful value with limited theoretical justification.

The alternative is to examine the marginal impact of changes in social policy on the distribution of income. The answerable questions are limited to those concerning the effects of changes in social policy on the distribution of income, rather than those seeking to assess the effects of the tax/transfer/expenditure system as a whole. The policy maker in general is in practice little interested in the concept of absolute levels of redistribution. He seeks the approximate marginal impact on income distribution of past and proposed specific alternative policy actions.

Nevertheless several countries make estimates of absolute magnitudes of the effects of taxes and benefits on income redistribution, using various assumptions about the incidence of taxes and benefits. The U.K. Central Statistical Office (CSO) for example has for a number of years made estimates of this type. Whilst the theoretical objections pointed to above have not been circumvented, such work is of value particularly in its potential for future development (1) and the fact that it does cast a degree of light on how income inequality has changed over time as a result of broad changes in social policy. Some of the CSO findings are presented in the U.K. section. In the U.S.A. Okner and Pechman (2) have recently completed a study of the effects of taxes on the distribution of income. It was not their aim to resolve the question of tax incidence. Rather they measured the difference in distribution of tax burdens under several major competing views concerning incidence. Thus a valuable sensitivity analysis was performed. More work utilising this methodology is urgently needed in many countries.

Tax Evasion and Avoidance

An obvious problem, particularly with data based on tax statistics, is that of tax evasion. The true extent of this is obviously difficult to gauge. But it doubtless varies between countries, adding to problems of comparability. Legal tax

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1) See M. Semple and A.J. Boreham, Future Development of Work in the Government Statistical Service on the Distribution and Re-Distribution of Household Income, paper presented to the Royal Economic Society Conference on the Personal Distribution of Incomes and Property, Lancaster, July 1974.

2) Benjamin A. Okner and J.A. Pechman, Who Bears the Tax Burden? Brookings, 1974.

avoidance is an equally important issue which governments must face in framing effective redistributive policies. Pechman (1) has pointed to the considerable opportunities for avoidance by the rich in the U.S.A. Thurow has documented this (2), showing that those with incomes of over $1 million a year have considerable discretion in the amount of tax they pay in any particular year. Some opportunities for avoidance seem to exist even in Sweden (3). Richard Titmuss (4) showed that a good deal of the apparent fall in the share of upper income groups, as indicated by a report of the Board of Inland Revenue (5), was due to tax avoidance.

III. Previous International Comparisons

It is only comparatively recently that systematic comparative analysis of the distribution of income by size has begun. The total literature is still small. All analysts have faced the difficulties discussed in this paper, and all have counselled great caution in the interpretation of their findings.

The major concern of Kravis' 1960 study (6) was to analyse the 1950 Survey of Consumers' Expenditures in the U.S.A. In Chapter VII, Kravis compared the distribution of pre-tax income among consumer units within the United States with that of ten other developed and underdeveloped countries. The date of reference was the early 1950's for almost all the countries. With respect to Kravis' conclusions concerning the countries discussed in this paper, he found that Denmark and the Netherlands had less inequality (7) than the United States and that Great Britain had about the same degree of inequality.

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1) J.A. Pechman, "The Rich, the Poor, and the Taxes they Pay", *Public Interest*, Fall 1969.
2) L.C. Thurow, *The Impact of Taxes on the American Economy*, Praeger, New York, 1971.
3) E. Oscarsson, *Hur Man Undgår Skatt i Sverige*, Kristall, Malmo, 1973.
4) R.M. Titmuss, *Income Distribution and Social Change*, London, 1962.
5) Board of Inland Revenue, *92nd Report, 1948-49*, Cmd.8052, 1950.
6) See I.B. Kravis, *The Structure of Income: Some Quantitative Essays*, University of Pennsylvania, 1962.
7) As measured by the standard deviation of the logarithm of income.

Kravis has also published two other articles covering a broad range of rich and poor countries (1). In his 1973 article he further confirmed the general finding of a number of earlier studies that incomes tend to be less equally distributed in poor countries than in rich countries.

In 1963 Kuznets published what is still the fullest international compilation of long-term historical data (2). Table 3 shows a selection of Kuznets' findings for five countries. The final year for each country shows data from later sources and thus allows an updating of his findings. The data are of course very heterogeneous and come from a wide variety of sources. In most cases they give only a partial view of personal income distribution, concentrating on the upper groups of income recipients. Nevertheless some generalisations are possible (3).

Considering all the countries Kuznets studied (4), he found a clear long-term tendency for the share of the upper groups to decline. For some countries the decline seems confirmed by more recent data. For example for the U.K. the top 20% received around 50% of income before tax in 1938 (52% according to Seers, 50% according to Lydall). By 1972 their share had declined to 39.3% (Roberti). Similarly in Sweden the evidence suggests that the share of the top 20% fell from 52% to 43% over the 1945-1967 period. For the U.S.A., Kuznets showed a steady decline in the share of the top 5% of earners of income before tax after 1919-1928. The 1972 data suggest that this long-term decline may be continuing, though currently only very slowly, if at all.

The reduction in the share of the top groups which Kuznets noted for the Netherlands and Denmark does not however appear to have been maintained over subsequent years. Methodological issues make the comparisons between Bjerke's data for Denmark and the 1968 figure presented here rather problematical, but it does seem that the decline in the top decile's share between 1949 and 1955 was reversed by 1968.

Concerning the lower income brackets, Kuznets concluded for the 9 countries he studied that the rise in their shares was relatively less marked than the decline in the shares of the

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1) I.B. Kravis, "International Differences in the Distribution of Income" *Review of Economics and Statistics*, November 1960; I.B. Kravis "A World of Unequal Incomes" *Annals of the American Academy of Political and Social Science*, September 1973.
2) S. Kuznets, "Quantitative Aspects of the Economic Growth of Nations: VIII. Distribution of Income by Size", *Economic Development and Cultural Change*, January 1963.
3) For a discussion of Kuznets' findings in the context of later studies, see F. Paukert, "Income Distribution at Different Levels of Development: A Survey of Evidence", *International Labour Review*, August-September 1973.
4) Table 16 pp.60 ff. in Kuznets, *op.cit.*, presents data for the United Kingdom, Prussia, Saxony, Germany - West Germany, Netherlands, Denmark, Norway, Sweden and the United States.

Table [illegible]

Long Term Estimates of Percentage Income Shares (Tax or Consumer Units) in Selected Countries.

United Kingdom

	Bowley		Clark	Seers		Lydall	Roberti
	1880	1913	1929	1938	1947	1957	1972
Top 5	46	43	33	31	24	18	n.a.
Top 20	58	59	51	52	46	42	39

Netherlands

				Roberti
	1938	1949	1954	1967
Top 5	19	17	13	n.a.
Top 20	49	46	39	45
Lowest 60	31	34	40	32

Denmark

	Zeuthen		Bjerke			Statistisk Arbog
	1908	1925	1939	1949	1955	1968
Top 10	39	37	35	30	27	30
Top 20	55	53	51	45	44	46
Lowest 60	31	25	27	32	32	31

Sweden [a]

	Bentzel			Roberti
	1935	1939	1945	1967
Top 5	28	30	24	n.a.
Top 20	58	59	52	43
Lowest 60	19	19	23	33

United States

	Kuznets				Henle
	1919-1928	1929-1938	1939-1943	1944-1948	1972
Top 5	25	25	21	17	16

	U.S. Department of Commerce				Henle
	1929	1941	1944-1947	1955-1959	1972
Top 20	54	49	46	45	41
Lowest 60	26	29	32	32	35

a : Earned income

Sources: Except for final year, S. Kuznets, "Quantitative Aspects of the Economic Growth of Nations : VIII. Distribution of Income by Size" in Economic Development and Cultural Change, Jan. 1963, table 16, pp.60 ff. The names refer to the following publications : A.L. Bowley, The Change in the Distribution of the National Income, 1880-1913, Oxford 1920; C. Clark, National Income and Outlay, London 1937; D. Seers, The Levelling of Incomes Since 1938, Oxford, n.d., H. Lydall, "The Long-Term Trend in the Size of Distribution of Income", Journal of the Royal Statistical Society, Series A, CXXII, Part 1, 1959; P. Roberti, "Income Distribution: A Time Series and a Cross-Section Study"; Economic Journal, September 1974; F. Zeuthen, Den Økonomiske Fordeling, Copenhagen 1928; K. Bjerke, "Redistribution of Income in Denmark Before and After the War", presented at 1961 meeting of International Association for Research in Income and Wealth; R. Bentzel, Inkomstfordelningen I Sverige, Stockholm 1952; P. Henle, Monthly Labor Review, December 1972.

upper groups. The more recent data presented here confirm this conclusion. Of the countries presented in Table 3, Sweden alone has shown a marked increase in the share of the lowest 60% since the Second World War, from 23% (Benzel) to 33% (Roberti). Since 1949 the share of income before tax of the lowest 60% has declined in the Netherlands and Denmark. In the U.S.A. it appears to have increased slightly from 32% (1944-1947, Department of Commerce) to 34.8% (Henle).

In 1967 the United Nations published a study prepared by the Secretariat of the Economic Commission for Europe, Incomes in Postwar Europe : A Study of Policies, Growth and Distribution. Chapter 6 included an analysis of household income distribution and redistribution. Trends in the percentage contribution of pre-tax personal income for eight European countries (1) were analysed over the mid-1950's to early 1960's period. Over this period only one country, Norway, showed a clear tendency towards a reduction in income inequality displayed at both ends of the scale. The U.K., Netherlands and Denmark shared a common feature : a fall in the income share of the top decile group (mainly borne by the top percentile groups). Evidence presented elsewhere in this paper shows that for the Netherlands and the U.K. this decline in the income share of the top decile has continued.

Table 4 is derived from data presented in the UN study. It presents two indicators of pre-tax income inequality in eight OECD countries. The first column shows the ratio of average per capita pre-tax income of the top 1¼ per cent of income earners to that of the bottom 10 per cent. The second column presents the Gini coefficient of inequality. Both measures show France to have had the greatest degree of pre-tax income inequality in the early 1960's. The "rich" in France (on this definition) received 163 times the per-capita pre-tax income which the "poor" received. By contrast in Denmark the ratio was 33.

A central concern of several of the authors in the field, including Kuznets, has been the relationship between economic development and changes in income inequality. The topic is not a concern of this paper, which deals only with relatively highly developed OECD economies. Nevertheless studies of the whole spectrum of developed and underdeveloped nations have cast light on trends in inequality in some countries which are the concern of this paper. For example F. Paukert's survey (2) of income distribution studies concluded that there has been a long-run trends toward equality in Great Britain and Norway. Data for the U.S.A. also suggest a gradual, if not very clearly discernible, trends towards equality. Other conclusions (3) by Paukert

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1) The countries were: United Kingdom, West Germany, Netherlands, Denmark, Norway, Sweden, France, Finland.

2) F. Paukert, "Income Dictribution at Different Levels of Development: A Survey of the Evidence", International Labour Review, August-September 1973.

3) Paukert's source for the countries discussed in this paper was United Nations, Income in Post-war Europe..., op.cit.

Table 4

Two Measures of the Inequality of Pre-Tax Income Distribution in Seven O.E.C.D. Countries

		Ratio of average income of top 1½ per cent to bottom 10 per cent	Gini coefficient
Denmark	1963	33	0.39
France	1962	163	0.52
Germany	1964	88	0.47
Netherlands	1962	74	0.44
Norway	1963	48	0.36
Sweden	1963	35	0.40
U.K.	1964	36	0.40

Source: Incomes in Post War Europe, Table 6.10, op. cit.

relevant to OECD countries were, as measured by the Gini coefficient, that France showed an exceptional degree of inequality, taking into account its high level of average income, but that West Germany and Finland also had a level of pre-tax inequality well above the general level for countries at a similar level of income.

Other studies having as their central focus changes in inequality in underdeveloped countries have included the 44 country study by Adelman and Morris (1) and a joint study by the World Bank's Development Research Center and the Institute of Development Studies at the University of Sussex (2).

H. Lydall's *The Structure of Earnings* (3) includes an international comparative analysis of the distribution of employment income in about thirty countries. The author chose as his basic analytical tool the 'Standard Distribution' (4). As the book's title suggests the emphasis of the study was on earnings rather than income. The intercountry comparison showed that the richer countries generally had less dispersion than the poorer, although the relationship was by no means perfect. In this finding Lydall confirmed Kravis's earlier conclusions about the contrast between rich and poor countries. Lydall further confirmed that wherever significant long-term changes had occurred over the preceding half century, the movement had been towards greater earnings equality. At the same time, in some countries of Western Europe there had been relatively little change in the dispersion of earnings of manual workers since the beginning of this century. In Belgium and the U.K., however, a significant decline did occur.

Finally mention should be made of a recent study by P. Roberti (5). A central purpose of the study was to test hypotheses relating to changes in the income shares of different groups over periods of economic growth. In examining trends in income distribution decile by decile, Roberti cast doubt on the belief that with economic growth income distribution tends to become more equal. Examination of trends in the income shares of deciles can be more enlightening than evidence given by relatively

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1) I. Adelman and C.T. Morris, *An Anatomy of Patterns of Income Distribution in Developing Nations*, Part III of the *Final Report* (Grant AID/csd-2236, Northwestern University), 1971.

2) Chenery et al, *Redistribution with Growth*, Oxford University Press, 1974.

3) Published by Oxford University Press, 1968.

4) Defined as the distribution of full-time male adult employees in all occupations and industries except farming, classified according to their pre-tax money wage or salary earnings.

5) P. Roberti, "Income Distribution : A Time-Series and a Cross-Section Study", *Economic Journal*, September 1974. The countries examined were Finland, Netherlands, Norway, Sweden, United Kingdom, United States.

crude overall coefficients (such as the Gini coefficient). Roberti distinguished between situations in which all deciles show a movement towards equality and one in which some move towards, and some away from, a more equal distribution. He concluded that only in the Netherlands, over the 1950-1958 period, was there a reduction in inequality, as measured by his rather strong and restrictive criterion, across all deciles. In other countries the picture was more confused making generalisations potentially misleading.

IV. Personal Income Distribution in the U.S.A.

The United States has the richest and most comprehensive information on income distribution. Data specifically collected to illuminate distributional questions have been gathered for over thirty years. There is a relatively small, though evolving, literature on the topic. The importance of analysing the redistributive impact of social and economic policies is being increasingly recognised. The 1974 *Annual Report of the Council of Economic Advisers* (1), e.g., included a chapter examining the distribution of income among families and individuals and examined some of the government policies which have influenced it.

Three basic official data sources are available:

(a) the Decennial Census of Population;

(b) the annual Current Population Survey (CPS), conducted by the Bureau of the Census, initiated in 1940;

(c) the annual *Statistics of Income* prepared by the Internal Revenue Service from federal income tax returns (2).

Each source has inevitable shortcomings, but, taken together, reasonable estimates of the personal distribution of income may be made. An important problem with tax return data is that low-income individuals are not included. The Bureau of the Census estimates on the other hand tend to understate income particularly at the higher levels.

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1) *Economic Report of the President*, USGPO, February 1974. See especially Chapter 5.

2) B.A. Okner and J.A. Pechman, *op.cit.*, have constructed the MERGE file combining the best available information from the Internal Revenue Service and the Census Bureau. This links information on 30,000 families and single persons from the 1967 Survey of Economic Opportunity with data from a file containing information from 90,000 federal individual income tax returns filed for 1966.

Trends in the Pre-tax Family Income Distribution

There has been a slight but perceptible tendency, over the 1950-1970 period, towards greater equality in the family income distribution, but an opposite tendency in the Gini index (1) summarising the distribution of total earnings among male workers. Table 5 shows the Gini index for family income (2) declining over the period 1950-1970 from .375 to .353. Table 6, on the other hand, indicates that over the shorter 1958-1970 period the Gini measure for the distribution of the total earnings of male workers increased from .399 to .428.

The conflicting trends in inequality expressed in these distributions may be accounted for by two major factors. Firstly, changes have occurred in the distribution of unearned income. The growing flow of public transfer payments has increasingly supported the incomes of families with low or zero earnings. Secondly, the proportion of families with two or more earners has been growing. Over the 1958-70 period, the fact that the proportion of wives who worked rose from 31 to 41 per cent had an equalising impact. The proportion of teenagers who work (generally part-time) has also increased (1).

Table 5 indicates that over a quarter century of great social change and unprecedented development of public intervention in economic and social spheres, income shares have changed very little. A slight decline is discernible in the share of measured income received by the top 5 per cent. This almost certainly reflects the secular decline in the share of national income received by owners of non-labour factors of production. A very slight gain over the period in the measured income share of the bottom 20 per cent is evident, as is a similarly very small decline in the share of the top 20 per cent.

To illustrate the absolute levels of income being discussed, Table 7 shows the incomes defining the upper limits of the first four fifths and the lower limit of the highest 5 per cent of family incomes in constant (1971) dollars over the period 1947 to 1971. The final column shows how general constancy of shares reflects itself in the similar rates of growth of the incomes representing the upper limits of the quintiles. Looking at these data illustrating income distribution

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1) For an early classic analysis of the level of and changes in the upper segments of the U.S. size distribution of income primarily using federal income tax data, see S. Kuznets, Shares of Upper Income Groups in Income and Savings, National Bureau of Economic Research, 1953.

2) Aggregate money income before taxes.

3) Peter Henle, "Exploring the Distribution of Earned Income" Monthly Labor Review December 1972. Henle provides a useful review (p.22) of the conclusions of the major studies in this field in recent years.

Table 5

Per cent of Aggregate Money Income Before Taxes Received by each Fifth and Highest 5 Per cent of Families : 1947-1972

Income Rank	1947	1950	1955	1960	1965	1970	1972
All families(1)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Lowest Fifth	5.0	4.5	4.8	4.9	5.3	5.5	5.4
Second Fifth	11.8	12.0	12.2	12.0	12.1	12.0	11.9
Third Fifth	17.0	17.4	17.7	17.6	17.7	17.4	17.5
Fourth Fifth	23.1	23.5	23.7	23.6	23.7	23.5	23.9
Highest Fifth	43.0	42.6	41.6	42.0	41.3	41.6	41.4
Top 5 per	17.2	17.0	16.8	16.8	15.8	14.4	15.9
Gini Index	n.a.	.375	.366	.369	.360	.353	n.a.

(1) Beginning 1970, data based on revised methodology; for description, see Current Population Reports, Series P.60, No.59.

Source: U.S. Bureau of the Census, Current Population Reports, series P-60, Nos. 53 and 85; Economic Report of the President, USGPO, Washington, February 1974; and Peter Henle, Monthly Labour Review. December 1972, p.22.

Table 6

Gini Index of the Distribution of Total Earnings, Male Workers, 1958-70, U.S.A.

	1958	1960	1966	1970
Gini Index	.399	.411	.413	.428

Source: P. Henle, *op.cit.* Table 1, p.17.

Table 7

Income at Selected Position by Each Fifth and Highest 5 Per cent of Families in Constant (1971) Dollars:1947-1972

	1947	1950	1955	1960	1965	1970	1971	Annual average percentage rate of growth 1947-1972
Families (1)	5,483	5,594	6,693	7,688	8,932	10,289	10,285	2.7
Upper limit of each fifth:								
Lowest	2,870	2,796	3,360	3,824	4,503	5,368	5,275	2.6
Second	4,649	4,808	5,719	6,576	7,578	8,748	8,681	2.6
Third	6,290	6,434	7,723	8,859	10,250	11,849	11,863	2.7
Fourth	8,929	9,015	10,452	12,115	13,977	16,995	17,481	2.8
Lower limit of the Highest 5 per cent	14,748	14,589	16,156	18,966	24,691	25,834	25,444	2.3

Source: Statistical Abstract of the U.S.A., 1973, Table 537.

among families in absolute terms, it is plain of course that absolute differences are widening over time. Purely as an example, in 1947 the difference (in constant 1971 dollars) in incomes between the upper limit of the lowest fifth and the lower limit of the top 5 per cent was 11,878 dollars. In 1971 it had increased to 20,169 dollars.

More Comprehensive Concepts of Income

Data in Table 5 and 7 stem from an income concept which includes wages and salaries, proprietor's income, interest, rent, dividends and money transfer payments. They exclude capital gains. This omission however is unlikely to be important in assessing trends in proportions over time. Internal Revenue tax data however allow the inclusion of capital gains in the income concept. Table 8 below shows that, based on data from tax returns, the share of total income, including realised capital gains, received by the top 1 per cent hardly fluctuated over the period. The shares of the top 2, 5, 10 and 15 per cent all rose slightly. It is unlikely that correction for non-reported sources of income, such as tax-exempt interest and excess depletion allowances on oil investments, would alter these estimates significantly. Corrections for the undistributed profits of corporations would also have little impact on the trends where discernible because of their small variance over the period.

Other omitted sources of real income may, however, have considerably more importance for a full analysis of distribution. The value of goods and services produced in the home, for example, is generally not measured. Further, the imputed value of rental income to the homeowner living in his own home is excluded from the above data. Employee fringe benefits paid by employers, and the money value of government transfers in kind, are also omitted. Nevertheless estimates of some of these income components have been made. Some were presented in the 1974 Economic Report of the President. Table 9 shows, for 1968, income equality (measured by the variance in the natural logarithm of income), under a set of different definitions and estimates of income. This measure takes the value 0 for perfect income equality and increases with income inequality. The table indicates that inclusion of the rental value of owner-occupied homes had relatively little impact on family income distribution. The inclusion of farm wages, farm income received in kind and medical payments tended to reduce this measure of inequality because of their general concentration among the poor. Deductions of personal income taxes and payroll taxes from money income plus imputed income reduced income dispersion somewhat further. The massive increase in Federal food, medical and other in-kind subsidies to the poor would undoubtedly reduce inequality further were they included. Estimation of the effect of including the value of other tax-financed goods and services, including education and training, was not attempted on the grounds that the incidence of their benefits by income level was unknown.

Table 8

U.S.A.: Before-Tax Income Shares (per cent)

Year	Top 1 per cent of Tax Units	Top 2 per cen of Tax Units	Top 5 per cent of Tax Units	Top 10 per cent of Tax Units	Top 15 per cent of Tax Units
1952	9	12	19	27	33
1963	8	12	19	28	35
1967	9	13	20	29	36

Source: *Statistics of Income*

Table 9

Family Income Inequality Under Alternative Definitions of Income, 1968

	Definition of Income	Income Inequality (1)
1.	Money income	0.75
2.	Line 1 plus rental value of owner occupied homes	0.74
3.	Line 2 plus non-money wages and non-money farm income	0.69
4.	Line 3 plus medicare payments	0.62
5.	Line 4 plus imputed interest from banks and insurance companies	0.61
6.	Line 5 plus other imputations (2) equals money income plus imputed income	0.61
7.	Line 6 less direct taxes equals disposable family personal income	0.52

Source : Table 3[illegible], Economic Report of the President, February 1974.

(1) Variance in the natural logarithms of income.

(2) Other imputations include services furnished without payment by banks and insurance companies, military clothing, and miscellaneous other items.

In a recent issue of the Survey of Current Business (1), new estimates were presented by the Bureau of Economic Analysis (BEA) of the size distribution of family personal income for 1964, 1970 and 1971. Among a number of valuable features of these new estimates is the fact that they are based on a relatively comprehensive definition of income including both money and non-money components. The concept "family personal income" (FPI) comprises all money income that is received regularly plus several types of imputed income, medicare benefits received, and the net value of food stamps less personal contributions for social insurance. FPI is measured before deduction of taxes. Capital gains are excluded. Imputed income is made up of non-money wages, farm income, rent on owner-occupied non-farm dwellings and interest. As an indication of the importance of non-money income, in 1971 it was estimated at 6% of total FPI (2). Table 10 shows the distribution of FPI and total money income (TMI) (3) by income quintile for the years 1964 and 1971, for all consumer units and for families.

The table shows for both FPI and TMI that the distribution of family incomes is more equal than that for all consumer units. Over the period changes in the distributions were largely confined to the top and bottom fifths. For families, the share of FPI of the bottom quintile increased from 5.8% to 6.6%; of TMI from 5.6% to 6.0%. The greater rise of FPI reflects in part the increase in food stamps and the establishment of the medicare programme. The share of FPI in the second quintile rose from 11.8% to 12.1%; of TMI from 12.0% to 12.2%. The share of both FPI and TMI of the top 1% of families dropped by 0.6%.

M.K. Taussig (4) has attempted to measure the distribution of economic welfare in the U.S.A. in 1966 through a series of adjustments to the Census money income measure, obtaining two alternatives "Comprehensive Income" concepts. Version I of Comprehensive Income was defined as money income after taxes, adjusted for the annuitization of net worth and labour market experience, and deflated by regional and family size and composition indexes (5). Table 11 summarises some of Taussig's

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1) D.B. Radner and J.C. Hinrichs, "Size Distribution of Income in 1964, 1970 and 1971", Survey of Current Business, October 1974. The old BEA series was discontinued after 1963. The new estimates are not completely comparable with the old series because of new estimating procedures and slight definitional differences.
2) See Survey of Current Business, ibid, Table 1.
3) TMI comprised all money income "received regularly".
4) M.K. Taussig, Alternative Measures of the Distribution of Economic Welfare, Industrial Relations Section, Princeton University, 1973.
5) His second version, "Comprehensive Income II", was defined as money income after taxes adjusted for the annuitization of net worth plus the value of the leisure of both heads (of families) and wives deflated by the same regional and family size and compositional indexes. On the distribution of wealth in the U.S.A., see for example G. Kolko, Wealth and Power in America, Praeger, New York, 1962; F. Lundberg, The Rich and the Super-Rich, Lyle Stuart, Inc., New York, 1968.

Table 10

Distribution of Family Personal Income (FPI) and Total Money Income (TMI) by Income Quantile 1964 and 1971

Income rank	All consumer units		Families	
	FPI	TMI	FPI	TMI
	Per cent of income		Per cent of income	
1964				
Lowest fifth	4.2	3.9	5.8	5.6
Second fifth	10.6	10.7	11.8	12.0
Third fifth	16.4	16.7	16.7	17.0
Fourth fifth	23.2	23.5	22.5	22.7
Highest fifth	45.5	45.2	43.1	42.7
Top 5%	20.0	19.6	18.8	18.4
Top 1%	8.0	7.8	7.5	7.2
1971				
Lowest fifth	4.8	4.2	6.6	6.0
Second fifth	10.8	10.8	12.1	12.2
Third fifth	16.4	16.8	16.8	17.1
Fourth fifth	23.3	23.7	22.5	22.9
Highest fifth	44.6	44.5	42.0	41.7
Top 5%	19.1	18.6	17.8	17.3
Top 1%	7.5	7.2	6.9	6.6

Source : Survey of Current Business, op.cit., Tables 4 and 6.

Table 11

Three Summary Income Distributions, U.S.A., 1966

Age Groups	Gini Coefficient	Variance of the Logarithm of Income
1. Under Age 25		
Income before taxes	.326	.930
Comprehensive Income I	.317	.590
Comprehensive Income II	.315	.486
2. Age 25-34		
Income before taxes	.272	.642
Comprehensive Income I	.347	.631
Comprehensive Income II	.289	.378
3. Age 35-44		
Income before taxes	.294	.740
Comprehensive Income I	.364	.631
Comprehensive Income II	.336	.390
4. Age 45-54		
Income before taxes	.334	.832
Comprehensive Income I	.386	.723
Comprehensive Income II	.357	.531
5. Age 55-64		
Income before taxes	.400	1.210
Comprehensive Income I	.430	.955
Comprehensive Income II	.417	.753
6. Age 65 and over		
Income before taxes	.475	1.350
Comprehensive Income I	.462	.933
Comprehensive Income II	.443	.787
7. All Age Groups		
Income before taxes	.376	1.080
Comprehensive Income I	.407	.771
Comprehensive Income II	.377	.565

Source: M.K. Taussig, *op. cit.*, Table 9.

findings. A major function of his monograph was to disaggregate the distribution of economic welfare by age. Taussig showed convincingly that disaggregation of the total population by age brings out a great deal of interesting and important information about the distribution of economic welfare that is concealed in aggregate income distributions. Changes in the aggregate distribution - or indeed its stability - are often the net result of offsetting changes in the various age-disaggregated distributions.

Taussig's adjustment process had the effect, for all age-groups, of increasing the Gini coefficient from .376 to .407. But other measures, such as the variance in the logarithm of income (the measure used by the Council of Economic Advisers, 1974, see Table 9 above) showed an equalising effect. In general Taussig's results showed that more comprehensive measure of economic welfare led to larger shares of income for both the extreme low-income and high-income groups, with correspondingly smaller shares for middle-income groups. But the net effect on average inequality was ambiguous. Much depended on the summary measure adopted.

A central conclusion of Taussig's analysis was that none of the adjustments to the basic census money income measure of economic welfare significantly altered the cross-sectional degree of inequality evident in the U.S.A. in 1966. As he wrote (1), "..... our results suggest that the true degree of inequality may be somewhat understated by money income measures of economic welfare, mainly because of their omission of the potential consumption value of wealth holdings .... Other adjustments to the basic money income distribution beyond those attempted ... could alter this basic finding, but we see no grounds for a presumption that any further adjustments would be equalising in their effect". It should be pointed out that this conclusion would appear to conflict with the conclusions of the 1974 Economic Report of the President discussed above.

Adjustments for Taxes and Transfers

In the same study Taussig estimated the redistributional effects of the federal personal income and payroll taxes. He did not deal, nor has any other study dealt adequately, with the question of the effects of other taxes on the size distribution of income (2).

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1) Op.cit.p.72.
2) For very approximate estimates of the aggregate impact of government expenditures as well as taxes by income class, see W.I. Gillespie, "Effect of Public Expenditures on the Distribution of Income" in R.A. Musgrave, ed., Essays in Fiscal Federalism, Washington D.C., Brookings Institution, 1965.

In Table 12, row a, "Income before taxes and transfers", is total family money income net of social security benefits, veteran's pensions, unemployment insurance, public assistance and welfare, and workman's compensations. Row b, "Income before taxes and after transfers" gives estimates of the corresponding distributions of Census money income (including all transfer payments). Row c, "Income after taxes and transfers" gives estimates of the distributions of family income net of personal income and payroll taxes (1). The data reveal that both taxes and transfers have equalising effects on the distribution of economic welfare.

Comparison of rows b and c show that the equalising effects of taxes are comparatively slight. This is consistent with the recent findings of Pechman and Okner (2). Comparison of rows a and b however show a greater equalising effect for transfer payments. For example, the Gini coefficient for the age group 65 and over falls from .653 to .475 after transfers are included. The variance of the logarithm of incomes declines from 9.09 (its highest value for all groups) to 1.35. The deduction of personal taxes from Census money income however only further reduces the Gini coefficient to .451. The decile share of total income for all age groups combined rises from 0.2 per cent to 1.4 per cent after transfers, but only to 1.5 per cent when personal taxes are subtracted (3).

Lifetime income

In the introduction to this paper the issue of the appropriate time-period of analysis was raised. Whilst the theoretical objections to a lifetime income analysis are few, in practice the difficulties are enormous and the necessary assumptions for estimating the future incomes of those now alive raise a certain number of issues. Nevertheless in the U.S.A. a certain amount of work in this area has been done and some of the results are presented here.

Table 13 below shows estimated lifetime incomes of men, classified by educational level, based on 1972 data. Such lifetime income estimates are a measure of the incomes that could be expected on the average by members of specific education groups in a lifetime (or for any specified span of year) if the mean income estimates by age and education, and life expectancy rates, did not change from those in the reference year, in this case 1972.

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1) For details of the complex procedures involved in making these estimates, see M.K. Taussig, op.cit., pp.18-20.
2) B.A. Okner and J.A. Pechman, op.cit.
3) See M.K. Taussig, op.cit., p.21.

Table 12

Distribution of Before-Tax and After-Tax Incomes, U.S.A. 1966

Age Groups	Gini Coefficient	Variance of the Logarithm of Income
Under Age 25		
a. Income Before Taxes and Transfers	.377	1.930
b. Income Before Taxes, After Transfers	.326	.930
c. Income After Taxes and Transfers	.318	.886
Age 25-34		
a. Income Before Taxes and Transfers	.286	1.940
b. Income Before Taxes, After Transfers	.272	.642
c. Income After Taxes and Transfers	.261	.601
Age 35-44		
a. Income Before Taxes and Transfers	.309	1.660
b. Income Before Taxes, After Transfers	.294	.740
c. Income After Taxes and Transfers	.282	.697
Age 45-54		
a. Income Before Taxes and Transfers	.351	2.180
b. Income Before Taxes, After Transfers	.334	.832
c. Income After Taxes and Transfers	.322	.781
Age 55-64		
a. Income Before Taxes and Transfers	.429	3.58
b. Income Before Taxes, After Transfers	.400	1.21
c. Income After Taxes and Transfers	.389	1.13
Age 65 and Over		
a. Income Before Taxes and Transfers	.653	9.09
b. Income Before Taxes, After Transfers	.475	1.35
c. Income After Taxes and Transfers	.451	1.27
All Age Groups		
a. Income Before Taxes and Transfers	.417	4.34
b. Income Before Taxes, After Transfers	.376	1.08
c. Income After Taxes and Transfers	.361	1.00

Source: M.K. Taussig, op.cit., Table 2.

Inferences may be drawn from such data only with the greatest caution. Plainly a significant correlation exists between years of educational attainment and expected lifetime income. But the causal phenomena underlying the simple association are not brought to light through data of this type. Other variables positively influencing income-earning capacity correlate, and some relate causally, with educational attainment. To draw the policy conclusion that because of the clear observed correlation greater equality in lifetime incomes would necessarily be gained through greater equality in educational attainment would be quite unwarranted. For there is no simple link between age or schooling and inequality. Despite the fact that individuals' earnings generally increase, up to a point, with age, the net effect on the dispersion of individual income of retiring a cohort of older, less education persons and replacing them with young college graduates is not obvious. Both groups may have similar levels of earnings, the experience of the older group compensating for the higher educational attainment of the younger. After a time the earnings of the college-educated group can be expected to rise to well above average and contribute to greater inequality. There is clearly potential conflict between the goal of greater equality of opportunity and equality of income distribution.

Table 14 shows that estimated lifetime incomes for males classified by educational attainment have evolved over the period 1956-1972 so as to increase the percentage differentials between the three groups. This is in itself an interesting phenomenon. But it cannot illuminate the issue of education's help in predicting future individual income dispersion.

V. Personal Income Distribution in the U.K.

There are a variety of sources of income data in the U.K. In 1949, the Board of Inland Revenue began a series of quinquennial surveys. Over the period 1950-1961 yearly estimates were made for those years not covered by the quinquennial surveys. Since 1962-63 an annual Survey of Personal Incomes (1) has been carried out. The surveys cover income from all sources subject to tax, after making certain deductions, but before deductions of personal allowances and tax. The income unit is the single person or a married couple. The exclusion from these data of incomes below exemption limits, and certain non-taxable incomes, is of course a limitation. Another disadvantage relates to the nature of the "tax unit". These do not necessarily correspond to either individuals or households, since a wife is a part of her husband's tax unit

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1) Board of Inland Revenue, The Survey of Personal Incomes, annual, HMSO.

Table 13

USA : Life-time Income (from age 18 to death) in 1972 of Males by Years of School completed (1972 dollars) (1)

Educational level of men	Lifetime income
Total U.S.	$470,795
Elementary, less than 8 years	279,997
8 years	343,730
High School 1 - 3 years	389,208
4 years	478,873
College, 1 - 3 years	543,435
4 years	710,589
5 years or more	823,759

(1) Lifetime income estimates are based on cross sectional data on income, related to age and education of surveyed group and adjusted for the length of working life of year-round, full-time male workers.

Source and description of methodology:

U.S. Department of Commerce, Bureau of the Census. "Annual Mean Income, Lifetime Income and Educational Attainment of Men in the United States, for Selected Years 1956 to 1972". Current Population Reports, Series P-60, No. 92.Washington, D.C. : U.S. Government Printing Office, 1974.

Table 14

Lifetime Income Differentials Between Male Elementary School, High School and College Graduates 18 Years Old and Over, U.S.A., 1956-1972

(in current dollars)

Year and Selected Age Group	Lifetime Income			Per cent Increase	
	Elementary School Graduates	High School Graduates	College Graduates	High School to Elementary School	College to High School
Income from Age 18 to Death All Males: (1)					
1972	343,730	478,873	757,923	39	58
1968	285,344	382,678	602,864	34	58
1964	223,946	311,462	478,696	39	54
1961	205,237	273,614	454,732	33	66
1956	178,749	244,158	372,644	37	53

(1) 1972 data based on actual reported amounts, other years based on estimated mean values for specific income class intervals.

Source: See Table 13.

but a child is not part of his father's. One valuable advantage of these data however is that, because they are based on mandatory tax returns, they are more likely than voluntary sample surveys to pick up the correct distribution of income units within the range of income covered.

The Central Statistical Office (CSO) used these data over the 1949-1967 period for the calculation of income distributions published in the National Income "Blue Book". The CSO-published distributions were therefore very similar to the Inland Revenue statistics. However they did have the advantage of covering certain further categories of income. Supplementary and other benefits not subject to tax were included; the income in kind of agricultural workers and domestic servants was estimated; incomes below the tax exemption limit were included; and educational scholarships and grants were taken into account.

The Family Expenditure Survey (FES) which began in 1957, is a multi-purpose enquiry, involving the cooperation of about 7,000 households. It provides an extensive array of information, mainly about income and expenditure patterns, of groups of households. The concept of income is a relatively comprehensive one, being gross weekly cash income at the time of interview.

A further source of data rests in National Insurance and supplementary benefit records (1). These show the money received by people who are not in work, and the other allowances for special cases such as the family incomes supplement and attendance allowances.

The most recently developed source of income data is that provided by the General Household Survey (GHS) (2). This began in 1971. Here the income unit is the household. The income concept is fairly comprehensive, including earnings, pensions, state transfer payments, rent from property, interest and other types of regular income. However, the GHS has not been specifically designed as a specialised tool for gathering sophisticated income distribution data. The GHS survey is, on its own admission (3), inferior to the FES in the field of income data. For example, the FES adds imputed or notional amounts to households' income in the case of rent-free or owner-occupied accommodation.

Other sources which have a bearing on household income estimates include the Regional Statistics of Earnings (RSE) published by the Department of Health and Social Security (DHSS), and the Department of Employment's New Earnings Survey (NES) (4). To these will soon be added the 1971 Census and the Income follow-up survey associated with it.

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1) Central Statistical Office Abstract of Regional Statistics, No.9, HMSO, 1973.
2) Office of Population Censuses and Surveys, The General Household Survey, Introductory Report, HMSO, 1973.
3) See ibid., p.64.
4) Department of Employment, New Earnings Survey, HMSO, 1972.

The recent decision to set up a Royal Commission on the Distribution of Income and Wealth will no doubt greatly clarify the situation in the U.K. and propose improvements in the process of official collection and analysis of data.

There are serious difficulties in comparing data from all these sources. The RSE for example samples only employees, and only those covered by National Insurance. The NES samples employees covered by National Insurance, and provides data only on earnings. No attempt can be made here to compare data from the various sources. Rather, data deriving from the FES are presented. The relative breadth of the income concept and the cross-classification of households by a number of characteristics including income level, household size, age of head, number of children, working status, occupation of head and income of head allows a wide scope for policy-relevant analysis of the FES data (1).

Data originally from the Family Expenditure Survey are presented in Table 15. This shows, over the 1957-1972 period, the relative proportions of gross weekly cash income received by the households of each quintile and of the top decile. The overall picture is one of only small variability in income shares. An indication of the inequality of the distribution is that the top 10 percent of households received, throughout the period, a greater share of income than the bottom 40 percent. Nevertheless, the share of the top decile did decrease from 25.8 percent to 23.3 percent, whilst the share of the bottom quintile increased slightly from 5.5 to 5.8 percent.

Interpretation of such data is subject, of course, to a number of caveats. The income concept itself - gross weekly cash income - should be borne in mind. Non-pecuniary income may well be of considerably greater relative importance for high income groups, accentuating the 'real' degree of inequality in the cross-sectional picture (2). Capital gains are not included in these data; nor are undistributed profits. Comparison of grossed-up FES income data with the corresponding figures in the national accounts suggests under-estimation of income from investment and self-employment. It is not known whether this is attributable to understatement by respondents or to differential response between respondents and non-respondents (3).

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1) For a recent survey of the scope, methodology and use of expenditure surveys in an international framework see International Labor Organisation, ILO Report III, Scope, Methods and uses of Family Expenditure Surveys, Twelfth International Conference of Labor Statisticians 1973.

2) See Table 1 in the introduction. Data relevant to the U.K. is also presented by D. Wedderburn, "Inequality at Work" in P. Townsend and N. Bosanquet, (eds), Labour and Inequality David Neil, 1972.

3) See "The Incidence of Taxes and Social Service Benefits in 1972", Economic Trends, November 1973.

Table 15

Per Cent of Aggregate Annual Income Received by Each Fifth of Households 1957-1972

	1957	1960	1965	1970	1972
Lower fifth	5.5	5.7	5.7	5.7	5.8
Second fifth	12.7	12.5	12.8	12.2	12.2
Third fifth	17.5	17.6	18.1	18.0	18.2
Fourth fifth	22.7	23.5	23.8	24.1	24.5
Highest fifth	41.1	40.7	39.6	40.0	39.3
Top 10 Per Cent	25.8	25.4	23.9	24.1	23.3

Source: Calculated from data in Paulo Roberti, *The Distribution of Household Income in the U.K. 1957-1972*, Centre for Studies in Social Policy, Sept. 1974. Original data from *Family Expenditure Survey*, various years.

Redistribution of Income through Taxes and Benefits

The Central Statistical Office utilises data from the FES in publishing, on a regular basis, estimates of the incidence of (an incomplete set of all) taxes and social service benefits. Estimates and comparisons are made of the amounts which different households pay in contributions and taxes of various kinds and of the value of the benefits they derive, personally and collectively, from the various social services which can be allocated to them.

The problems inherent in making such estimates have been briefly discussed in the introduction to this paper. Unless the results are interpreted in the light of the particular assumptions chosen to overcome these problems - especially concerning tax incidence, benefit evaluation and allocation - they may be dangerously misleading. The CSO has been strongly criticised in the past for the methodology used (1). But in the absence of detailed knowledge about tax incidence and benefit evaluation, based on research as yet undone, the results nevertheless represent the best information available on the redistributive impact on households of a part of the tax-transfer-expenditure system (2).

Table 16 indicates the net benefits received less taxes paid in 1972. From the first line it should be noted that the average excess of taxes over benefits allocated to households was £234 per year. If the current revenues and expenditures of the public sector are in balance, this item reflects the fact that neither all benefits nor all taxes were allocated to households. The particular approach defining which items are allocable and which are not depends on both theoretical and empirical considerations. Thus the significance which can be attached to the absolute, as compared with the relative, magnitudes in the table is minor. In relative terms the table presents an unambiguously progressive tax and benefit system. Income is redistributed during a particular year from richer to poorer

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1) See A.L. Webb and J.E.B. Sieve, Income Redistribution and the Welfare State, Occasional Papers on Social Administration, No. 41, 1971; and Alan T. Peacock and Robin Shannon, "The Welfare State and the Redistribution of Income", Westminster Bank Review, August 1968.

2) For a comparison of the Economic Trends estimates of redistribution in 1968 and estimates for the same year in the U.S.A. derived from an unpublished paper, The Distribution of Public Burdens and Benefits, by R.A. Musgrave et al, (Harvard Institute of Economic Research, Discussion Paper 319), see J.L. Nicholson and A.J.C. Brittain, The Redistribution of Income, paper presented to the Royal Economic Society Conference on the Redistribution of Income and Property, Lancaster, July 1974.

Table 16

Net total benefits received (+) less total taxes paid (-)

1972

	Range of original income: £ per year								Average over all income ranges
	Under 381	381-	557-	816-	1,194-	1,749-	2,561-	3,750 and above	
All households in the sample	+ 586	+491	+319	+170	-109	-340	- 668	-1,374	-234
Retired household									
1 adult	+ 435	+229	+149	- 10	-220				+355
2 adults	+ 646	+491	+342	+293	+ 28	-338			+461
Non-retired households									
1 adult	+ 409	+153	- 20	-200	-440	-668	-1,109	-1,480	-286
2 adults	+ 660	+431	+286	+ 58	-270	-590	- 991	-1,707	-568
2 adults, 1 child	+1,044		+245	+161	-220	-458	- 757	-1,376	-447
2 adults, 2 children			+676	+265	-122	-302	- 582	-1,181	-354
2 adults, 3 children				+356	+216	- 21	- 315	-1,305	- 74
2 adults, 4 children				+618	+513	+141	- 109	-1,351	+233

Source: Economic Trends, op.cit., Table A(i), p.vii.

households, and larger families are favoured at the expense of smaller.

Thus for example in 1972 a two adult, one child (non-retired) household in the original income range £816 < £1,194 positively benefitted by £161, an amount £918 greater than an identical family in the higher original income range of £2,561 < £3,750. The £816 < £1,194 family with two adults and one child on the other hand benefited by £457 less than a two adult, four child family in the same original income range.

Table 17 shows income after all allocated taxes and benefits as a percentage of original income in 1972. Again it should be noted that the figure for all households in the sample averaged over all income ranges is 88 per cent reflecting the non-allocation of an excess of taxes over benefits. Thus again the absolute percentage levels have less significance than their relative relationships. If a progressive tax-benefit system is defined to be one in which higher income households benefit proportionately less in comparison with their incomes than low, the table clearly shows the U.K. system to be progressive. For example, a two adult, one child household in the original income range £557 < £816 received, after allocated taxes and benefits, an income 35 per cent higher than its original income. However, a similar household in the £1,749 < £2,561 original income range finally received only 78 per cent of its original income.

A valuable feature of the Economic Trends estimates is that they provide a unique U.K. source for examining trends in redistribution for a period of twelve years or more. Comparisons from year to year of tabulations such as Table 17 are made difficult because of the continuous rise in money incomes over the period, and the sheer amount of data. Table 18 shows Gini coefficients of vertical inequality. They are the weighted averages of Gini coefficients for each of six types of non-pensioner households. These six types represent about 75 per cent of all non-pensioner households in the FES. The strictures about the Gini coefficient made earlier in this paper should be borne in mind.

The figures suggest that those taxes and benefits taken into account in the analysis caused a significant reduction in inequality in the original and final income distributions. The Gini coefficient was reduced by about 22 per cent in the early 1960's and by about 28 per cent in the early 1970's. As J.L. Nicholson wrote,

> "the increase in the inequality of original incomes in the last few years of the period was accompanied and largely offset by an increase in the extent of redistribution through all taxes and benefits".(1)

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1) J.L. Nicholson, "The Distribution and Redistribution of Income in the U.K." in D. Wedderburn (ed.). Poverty Inequality and Class Structure, Cambridge University Press, 1974.

Table 17

Income after all taxes and benefits as a percentage of original income

1972

	Range of original income: £ per year								
	Under 381	381-	557-	816-	1,194-	1,749-	2,561-	3,750 and above	Average over all income ranges
All households in the sample	695	205	146	117	93	84	78	73	88
Retired households									
1 adult	691	150	122	99	85				243
2 adults	668	205	150	130	102	84			192
Non-retired households									
1 adult	385	133	97	80	69	67	62	65	78
2 adults	532	193	142	106	82	72	67	67	75
2 adults, 1 child	1,163		135	116	85	78	75	72	80
2 adults, 2 children ..			199	126	92	86	81	76	85
2 adults, 3 children ..				134	114	99	90	78	97
2 adults, 4 children ..				158	134	107	96	79	111

Source: Economic Trends, op.cit., Table B, p.viii.

Table 18

Gini coefficients of "original" and "final" vertical income inequality

	1961-2	1962-3	1963-4	1964-5	1965-6	1967	1968	1969	1970	1971	1972
Original Income	.313	.324	.329	.313	.306	.312	.321	.333	.334	.340	.334
Final Income	.243	.249	.259	.247	.235	.238	.247	.248	.247	.250	.239
Percentage reduction in Gini coefficient	22.3	23.2	21.4	21.3	23.1	23.6	22.8	25.4	26.1	26.4	28.3

Sources: Years 1961-71, J.L. Nicholson, "The Distribution and Redistribution of Income in the U.K." in D. Wedderburn (ed.). Poverty, Inequality and Class Structure, Cambridge University Press, 1974; for 1972, J.L. Nicholson and A.J.C. Britton, "The Redistribution of Income", op.cit.

VI. Other Countries

This section examines, rather more briefly than in the U.S. and U.K. sections, data available for Australia, Canada, Denmark, Japan, and Sweden.

Australia

For Australia Table 19 presents the income distribution by deciles of families before and after tax for 1967-68. The original data were generated by the Australia Survey of Consumer Expenditures and Finances 1966-68 (1). The sample consisted of 5,500 families living in mainly urban areas. It should be noted that the family income concept did not include imputed rent from home-ownership. This is likely to give a downward bias in the estimation of the degree of inequality. No analysis of trends has been possible for Australia in this paper. It may be noted however that, whilst bearing in mind the great problems of international comparison, in 1967-68 the top decile's pre-tax share in Australia was smaller than that of all the other countries discussed here. The bottom decile's share exceeded that of Sweden in 1967 and Denmark in 1968.

Table 19 shows that the Australian tax structure has only insignificant redistributional effects, if any, on the distribution of family income.

Canada

In Canada, statistics on the distribution of family and individual income by size have been available for selected years since 1951. Canada and the U.S.A. are perhaps the two countries presenting the least problems of comparison. Identical concepts of income and family unit are used in the U.S. series available from the Current Population Series and the Census. However, for the period 1951 to 1963 and in the 1961 Census of Canada, income data were restricted to the non-farm population only. In 1965 the coverage of the statistics was extended to the total population. Table 20 shows the income shares by quintile for non-farm families and unrelated individuals for 1951, 1965 and 1972. The 1951 data are based on the earlier coverage; the latter years including farm families.

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1) See **N.T. Drane** et al., The Australian Survey of Consumer Expenditures and Finances, 1966-68.

Table 19

Australia

Income Distribution by Deciles of Families Before and After Tax, 1967-68

Deciles of families	Per cent of Income Before Tax	Per cent of Income After Tax
Lowest	2.1	2.1
Second	4.4	4.5
Third	6.2	6.2
Fourth	7.3	7.3
Fifth	8.3	8.3
Sixth	9.5	9.5
Seventh	10.9	10.9
Eighth	12.5	12.5
Ninth	15.1	15.1
Top	23.8	23.7

Source: N. Podder, "Distribution of Household Income in Australia", *The Economic Record*, June 1972, Table III.

Table 20

Canada

Percentage Distribution of Income by Quintiles, Non-Farm Families and Unattached Individuals

	Families			Unattached Individuals		
	1951	1965	1972	1951	1965	1972
Lowest fifth	6.1	6.2	5.9	2.7	3.7	3.8
Second fifth	12.9	13.1	12.9	8.9	8.3	10.6
Third fifth	17.4	18.0	18.3	16.1	16.6	17.8
Fourth fifth	22.4	23.6	23.7	25.8	26.1	25.0
Highest fifth	41.1	39.0	39.1	46.6	45.2	42.9

Note: the 1951 data do not include farm families.

Source: For 1951, *Incomes of Non-Farm Families and Individuals in Canada Selected Years* 1951-1965, Dominion Bureau of Statistics; for 1965 and 1972, *Income Distribution by Size in Canada*, Statistics Canada, 1972.

It would appear that the slight trend towards equalisation in family income distribution evident over the 1951-1965 period has not been sustained since 1965. This is despite a number of significant improvements in social welfare payments, such as supplementary benefits to the aged in low income brackets and expanded social welfare payments. These developments should have primarily benefited the low income groups. Table 21 compares the distribution of aggregate money income by quintiles in Canada and the U.S.A. in 1965. Although real income levels in the U.S.A. exceed those in Canada, both countries show a similar concentration at the lower end of the distribution. The U.S. distribution has a higher proportion of families at the upper tail. The comparison indicates somewhat greater equality of income in Canada than in the U.S.A., with a greater dispersion of the income distribution of unrelated individuals than of families. However, it should be borne in mind that such comparisons as this are at a highly aggregated level and exclude forms of non-cash income, topics which are discussed elsewhere in this paper.

Denmark

For Denmark, Table 22 shows the development of decile income shares over the period 1962-1968. Based on income tax data, the table shows a decline of 0.5 per cent in the personal income share of the bottom decile of income earners over the six year period. The top decile increased its share by 2.4 per cent over the period, at the expense of all other deciles except the fourth, which also increased its share, by 0.3 per cent. This may be contrasted with data concerning Denmark in Table 3 above. Over the 1939-1955 period, Bjerke had shown a decline in the share of the top decile from 35 to 27.4 per cent.

Japan

Table 23 presents, for Japan, the distribution of yearly income (in cash and kind pre-tax) per household by yearly income quintile groups. Over the 1964-1972 period, the share of the lowest quintile increased from 7.7 to 9.2 per cent. That of the highest decreased from 40.3 to 36.9 per cent. The fourth fifth's share remained almost contant, whilst the second and third fifths both increased their share. In that paper Ishizaki concluded that there had been a trend towards equalisation up to 1949; an opposite movement after 1950; and a trend again towards equalisation after 1965.

Sweden

The data presented in Table 24 for Sweden refer to all males, and all males and females, over 20 years of age. Over the period 1961-1971 the share of the bottom decile of all persons

Table 21

Canada and United States

Distribution of Aggregate Money Income by Quintiles, 1965

	United States		Canada	
	Families	Unrelated Individuals	Families	Unrelated Individuals
Lowest fifth	5.0	3.0	6.2	3.8
Second fifth	12.0	7.0	13.1	8.3
Third fifth	18.0	13.0	18.1	16.6
Fourth fifth	24.0	25.0	23.6	26.1
Highest fifth	41.0	52.0	39.0	45.2

Sources: J.R. Podoluk, "Some Comparisons of the Canadian - United States Income Distribution" Review of Income and Wealth, December 1970, Table 5; original sources, Canada, unpublished data from Surveys of Consumer Finances; United States, Income in 1965 of Families and Persons in the United States, Bureau of the Census, Series P-60, N° 51.

Table 22

Percentage Shares of Total Income by Deciles: Denmark

Decile	Year			
	1962	1964	1966	1968
Lowest	1.5	1.5	1.5	1.0
Second	3.4	3.5	3.7	3.1
Third	4.5	4.6	4.8	4.3
Fourth	5.9	6.1	6.4	6.2
Fifth	7.5	7.8	7.8	7.1
Sixth	9.2	9.5	9.4	9.1
Seventh	11.0	11.0	11.1	10.9
Eighth	13.1	13.5	13.4	13.1
Ninth	16.3	16.0	16.1	16.2
Top	27.6	26.5	25.8	30.0

Source: Statistisk Årbog, 1973, Copenhagen 1973, Table 372.

Table 23

Japan

Distribution of Yearly Income[a] per Household by Yearly Income Quintile Groups

Percentages

	1964	1966	1968	1970	1972
All households[b]	100.0	100.0	100.0	100.0	100.0
Lowest fifth	7.7	8.1	8.7	9.0	9.2
Second fifth	12.9	13.2	13.6	14.1	13.8
Third fifth	16.9	17.1	17.5	17.9	17.6
Fourth fifth	22.2	22.5	22.5	22.8	22.5
Highest fifth	40.3	39.1	37.6	36.3	36.9

a) Labour and Capital Income in cash and kind before tax.

b) Excluding single person households.

Source: Japan Bureau of Statistics, Office of the Prime Minister. *Annual Report on the Family Income and Expenditure Survey*, 1970 and 1972.

Table 24

Sweden

Distribution by Deciles of Total Income of all Males, and all Males and Females, Before Tax, aged 20 and over, 1961-1971

Deciles	1961		1971	
	Males	All Persons	Males	All Persons
Lowest	0.8	0.2	1.0	0.4
Second	3.0	0.2	2.8	1.0
Third	5.2	1.4	4.6	2.6
Fourth	7.2	3.1	7.0	4.7
Fifth	8.7	5.9	8.9	6.6
Sixth	9.9	9.2	10.3	9.6
Seventh	11.1	12.5	11.6	12.5
Eighth	12.6	15.5	13.0	15.0
Ninth	15.0	19.1	15.3	18.1
Top	26.5	33.1	25.6	29.5
Top 5%	16.9	21.0	16.0	18.3
Top 1%	6.2	7.4	5.4	6.2

Source: Central Bureau of Statistics, Beräkningar av medelvärden, deciler, samt de bägge inkoinstpridningsmåtten maximala utjamningskoefficienten och konen+rationskoefficienten for perioden 1951-1971, Stockholm 1973.

doubled from 0.2% to 0.4%. The share of the top decile of all persons decreased from 33.1% to 29.5%. Movements in the same direction were evident for males alone. Considering the bottom 40%, whereas the share of males only decreased from 16.2% to 15.4%, the share of all persons increased from 4.9% to 8.7%. This reflects in part the increased number of married women going out to work.

In summary, no very clear overall picture emerges for these countries. A relative clear trend towards equalisation does however seem apparent in Japan. Canada has shown a check in an earlier tendency toward greater equality. Sweden evidences some movement toward equality. Australia in 1967-68 showed comparatively low and high shares for the top and bottom deciles respectively.

VII. Conclusions

The officially published statistics useful for policy-relevant analysis of personal and household income distribution remain very poor in the great majority of Member countries. **Existing** material on income is incomplete in all countries from the viewpoint of a broad definition of income. From an international viewpoint it is heterogeneous. The value of one-year distributions based on income data derived from a narrow concept of income, which generally excludes annuitized wealth and a wide array of non-pecuniary income items, is obviously limited for illuminating the distribution of economic welfare.

The heterogeneity of data within and between countries forbids intertemporal or international comparisons without the severest qualifications. Bearing these in mind, however, the general picture which emerges from the data presented in this paper is one of little significant change during the 1960's in personal income inequality as measured by the income shares of deciles. In the majority of countries studied, the share of the highest income decile declined, but the deciles benefiting did not always include the bottom decile. The findings discussed in the U.S. section regarding the adoption of a more comprehensive income concept adjusted for such factors as family composition, are important. Summary measures of income inequality gave contradictory indications. Disaggregation by age-group reveals a large amount of valuable and policy-relevant information about the distribution of economic welfare that remains hidden as aggregate income distributions. How a more comprehensive income concept would affect trends in inequality, cannot at present be answered. But they are among the most important areas for future research.

There is no evidence from the deficient data which would lead to the conclusion that there is any widespread and unambiguous trend to **greater equality.**

Nevertheless, it would be rash to claim that this necessarily implies the "failure" of public policy. In the first place reduction in the inequality of the personal distribution does not seem to have been a primary policy objective. And it should be pointed out that, in a period characterised by historically rapid economic growth in most countries, even if there has been little distributional change, at least decile groups have mostly shared equally in the rate of growth. Secondly, the pattern of family income distribution is influenced over time by certain major underlying developments. These may be summarised as demographic movements, general economic tendencies, changes in the household structure and modification in working habits. A great deal more work needs to be done, especially outside the U.S.A., to isolate, separately and together, the influences of these factors on the distribution of income.

There are perhaps two broadly complementary avenues open to a government in redistributional policy. It could attempt to influence the distribution of rewards relatively indirectly through the broad array of social and economic policies. The co-ordination of such policies, with income distribution effects explicitly in mind, requires however a great deal of knowledge of the causal processes at work, and of the magnitude of the parameters involved. Such information, by and large, is simply unavailable. Even in the U.S.A., where research into the distributional effects of public policies has been the most intensive, there is as yet little agreement on the theory or the facts (1).

The second approach open to governments in altering the distribution of income is of course the direct one. The tax system as a whole could in principle be made effectively, rather than nominally, progressive (2). The structure and allocation of benefits and transfers could be changed to make the net impact of the tax-transfer-expenditure system much more progressive than is now the case in almost all countries. Here of course the issue of conflict between the broad objectives of efficiency and equity comes to the fore, as well as fundamental political constraints.

Whatever set of policies is adopted in the future, they will require efficient statistical monitoring to assess their impact and efficiency. At present, this cannot be said to exist in any country. In summary, the main areas for improvement revolve around the following issues:

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1) See P. Mieszkowski, "Tax Incidence Theory: the Effects of Taxes on the Distribution of Income" Journal of Economic Literature, Vol.7; and B.A. Weisbrod, "Income Redistribution Effects and Cost-Benefit Analysis" in S.B. Chase, Jr. (ed.), Problems in Public Expenditure Analysis, Brookings, 1968.

2) See B.A. Okner and J.A. Pechman, op.cit., and L. Thurow, op.cit.

- *the definition of income*. Cash income is an inadequate proxy for economic welfare. No countries however officially collect data explicitly aimed at providing a comprehensive analysis of individual or family income in all its forms. The importance of a wide array of income components such as fringe benefits and capital gains is simply unknown in most countries.

- *the income unit*. The source of much of the available official data is from tax collection statistics. The taxpayer as the unit has advantages in some circumstances but the family or household unit probably has the balance of advantage for distribution analysis. A great deal more work is necessary to permit the standardisation of household or family data for family size and composition.

- *disaggregation*. Changes in the income distribution of an entire population may be seen as the net result of changes in the distributions of subsets of that population. Many important developments may be masked by an over-aggregative approach. Various researchers have shown that extremely valuable insights may be gained through disaggregating according to characteristics such as age, education and race.

- *the time-period of analysis*. Cross-sectional data of the distribution of income are overwhelmingly easier and cheaper to gather than longitudinal, for obvious reasons. But the value for policy purposes is unfortunately a good deal less. Despite their expensiveness, longitudinal studies of the income experience over time of individuals and families probably provide the only ultimately satisfactory analytical tool.

- *the redistributive impact of the public sector*. The pioneering official efforts by the CSO in the U.K. to assess the redistributive impact of a selection of government taxes and expenditures have provided valuable results and have suggested ways of improving such analyses. The future should see greater emphasis on the assessment of the impact of government policies *at the margin* on income distribution. There should be considerably greater use of sensitivity analysis in assessing the effects on distribution of various assumptions about tax incidence and benefit allocation.

- *methods of investigation*. There are few surveys explicitly designed to assess the state of, or trends in, comprehensive income inequality. In general for any one country a variety of sources, with the inevitable problems of matching and compatibility, have to be utilised. Regular surveys of the distribution of comprehensively-defined income would seem an obvious priority.

Inequality of Educational Opportunity by Social Origin in Higher Education (1)

This study updates earlier OECD work on social selection in education which was published four years ago (2). The former study covered 19 of the 25 OECD countries, no data being available for Australia, Canada, Finland, Iceland, New Zealand and Turkey. The present report includes later data for 13 of the countries represented in the earlier study, and includes Finland which was not covered earlier.

The general conclusion is that social selectivity in access to higher education is still substantial in all OECD countries, but is declining more rapidly than was suggested in the earlier study.

Methodological Problems

The concept of social origin is difficult to measure satisfactorily. People are distinguished by occupation, income, wealth, level of education and many other things. The different personal characteristics are highly intercorrelated, and the boundaries between different social groups are fluid, so that each dimension, taken as proxy measure of social origin, yields a

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1) This paper was prepared by Georg Busch of the OECD Secretariat. Similar evidence on this subject is provided by other papers presented to the seminar, though they are not always based on the same definitions as here, e.g. Halsey's paper (see below) deals with university rather than total higher education. The other papers which deal with this topic are:

M. Pfaff, G. Fuchs, Education, Inequality and Life Income: A Report on the Federal Republic of Germany. This shows transfer rates to high schools (Realschulen and Gymnasien) by social class of parents, social background (father's occupation) of high school and university students and academic performance by social class of pupils leaving 4th grade of elementary school and those entering Gymnasium; A.H. Halsey, Education and Social Mobility in Britain since World War II examines educational careers by level and type of school in relation to status category of father for samples of 10 000 adults taken in 1949 and 1972; J.C. Eicher, A. Mingat, Education and Equality in France analyses, for a sample of 17 000 children, admission rates to general secondary education and to lycées by father's occupation, transition to and enrolments in higher education for different social groups. It also examines later socio-professional status in relation to educational level attained and father's occupation.

2) See Group Disparities in Educational Participation and Achievement, Conference on Policies for Educational Growth, OECD, Paris 1971.

different distribution. Most of the available information concerning students' social background uses father's (or breadwinner's) occupation as the relevant measurement dimension. Only three or four countries provided another measure, i.e. father's (or mother's) level of formal education. For the purpose of international comparison we therefore had no choice and classified students by their father's occupation in line with the 1971 OECD Report.

Selectivity takes place at many stages within education, but this paper is limited to disparities of access to higher education as this was the only information available on a large scale. The 1971 OECD Report provided information for secondary education in seven countries but it was not comparable between countries. In the search for new evidence it appeared that reliable official information at the secondary level is still very scarce (1). As selectivity increases with each educational stage, the present results reflect the cumulative effect of selection at earlier stages. Not all of the selectivity measured here occurs in the immediate process of transition to higher education.

In order to make longitudinal comparisons wherever possible, the same classification of social groups was applied as in the 1971 Report. It consists of seven categories of which the five main categories are:

A : Upper stratum (professionals, managers, higher level administrative workers)
B : Middle stratum (clerical, sales workers)
C : Independent agricultural workers
D : Other independent workers
E : Lower stratum (manual workers)

The two others are the armed forces and people not classifiable elsewhere. The exact coverage of each group is described, country by country, in the Annex. It goes without saying that a comparison of twenty countries on a common scale poses a number of problems, given the variety of social structure, the many different ways in which data are classified, and the fact that the proportion unclassifiable varies between numerator and denominator and between countries.

Whenever possible the student data refer to the total enrolled in higher education, but in some cases they refer only to university students, and in the U.K. the 1971 data include some forms of secondary education. The definition of higher education is that used in national statistics. The figures were not available in sufficiently disaggregated form to permit adjustment to the OECD standardised system.

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1) For some recent information see:

M. Pfaff, G. Fuchs, op.cit. Tables 4 and 9, Figure 6.
A.H. Halsey, op.cit. Tables 7 and 11.
Bente Ørum, The Relationship between Social Background, Intellectual Level, and the Position in the School System at 14 years. Table IX.1. The Danish National Institute of Social Research. Copenhagen 1971.

Data on social origin of students are not generally available by sex. Table 5 indicates that in most OECD countries the overall rate of access to higher education is markedly higher for boys than for girls. Tables 6 to 8 show for the six countries for which data were available the differences in access to education by sex and social class. Table 6 is the equivalent of table 1 broken down by sex. Table 7 is the equivalent to the right hand side of table 2, and table 8 to the right hand side of table 3.

The most desirable measure of selectivity would be a comparison of the social origin of students with the distribution of all people of the relevant age-groups. However, this denominator was not available. An approximation is to take the age-group 45-54 of the male population which comes close to representing the average parental background of the student age-cohort. This measure takes no account of differences in fertility between different social groups, and even this information is not available in many countries, so the next best approximation is to take the total male active population as denominator (1). This is an imperfect measurement and necessarily affects the results. In the 1971 Report it was possible to use the male active population 45-54 years old as denominator for a few countries. In these cases the selectivity measures turned out to be consistently lower than if based on the total male active population (2). Thus we may infer that the present estimates, which are on the latter basis, probably overestimate the amount of selectivity.

Imperfections of the above type are not the only ones. In many countries, the classification of the labour force was not identical with that for the student body. We have tried to minimise these problems by adjustments as described in the country notes but in some cases, the distortions are important.

There are sometimes differences in the points of time to which the student and labour force data refer. Generally speaking, the average social status of the labour force improves over time because of the rapidity of economic growth. In cases where the denominator is for a period several years earlier than the numerator, social selectivity will be exaggerated.

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1) For a fuller discussion of measure of participation and disparities, see OECD, Group Disparities in Educational Participation, op.cit. p.23ff.

2) Ibid., pp.64, 67.

The different selectivity measures are also influenced by the number of social categories by which the student and labour force data are actually broken down. Table 1 shows that it was not possible to get separate figures for each of the categories C D and E in 11 of the 20 countries. For this reason it is misleading to compare the situation between countries unless groups C D and E are consolidated (1).

On the basis of the percentage distribution of students and the male active population the selectivity ratio has been computed in table 1. This shows the percentage of students of a particular social category divided by the percentage of active males in the same category.

Tables 2 and 3 show relative selectivity, i.e. the ratio of the selectivity ratios for different social classes. Table 2 shows the relative selectivity between the extremes of the social groups, i.e. the selectivity index of category A is divided by that for category E. Because of differences between countries in definition of social groups, it is dangerous to use this table for measuring inter-country comparisons. Our preferred measure of relative selectivity is more aggregative and is shown in table 3. This shows a relative selectivity index for groups A and B combined in relation to groups C D and E combined.

A third alternative selectivity measure is the index of dissimilarity. The right-hand side of table 1 shows the absolute differences of student and labour force proportions for each social group. By summing these differences and dividing by two, one can obtain the percentage of students which would have to be shifted to another socio-economic category to produce equality of access. This index is bigger, the more inequality there is, and is zero when there is equality (2). Estimates on this basis are shown in table 4.

Results

The comparability of the figures is too low to attach much significance to inter-country comparisons, but generally speaking the figures can be used to permit comparison over time, except for the U.K., where the 1971 figures are based on a much wider coverage of education than those for 1960. In this study we have the possibility of comparing changes over time in 14 countries, whereas the earlier OECD study permitted such comparisons for only 9 cases and for a shorter period.

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1) For this reason, some of the international league tables in the earlier study are misleading, particularly the one in op.cit. p.61.

2) For a discussion of other more complicated measures, see C.A. Anderson, "Expanding Educational Opportunities: Conceptualisation and Measurement", mimeographed, Stockholm, 1974.

It is clear that inequality in access to education is important in all OECD countries, and that inequality in access has been reduced almost everywhere, whichever of the three measures of relative selectivity is used (see tables 2, 3 and 4). In 37 of the 41 comparisons that can be derived from tables 2-4, inequality declined. Belgium is the only country which shows a perverse movement on all three measures, and this is probably due to the fact that the labour force data available as denominator for the later of the two estimates was for a period 5 years earlier than the numerator. In Norway there appears to have been a slight retrogression in equality as measured in table 3, but this is not confirmed by table 4, and table 2 shows no change for Norway.

The limited evidence available by sex suggests that there is general discrimination against females in access to higher education. This discrimination is exacerbated, to a certain extent, by the existence of a stronger social class discrimination for females than for males. This appears to be true for all three indicators used (tables 6-8). France is probably an exception in that the figures reveal virtually no social disparities between male and female students. Table 9 gives the indices of dissimilarities as between the social distribution of male and female students. These indices can be seen to be lower than those which describe the situation as between the total student population and the male labour force (table 4).

Our conclusions from the present evidence are different from the more pessimistic ones which the earlier OECD study derived from the evidence then available: "what change does seem to be taking place is gradual and does not appreciably alter the pattern of social disparities in education".

The present conclusions also differ from the earlier study in that we do not derive intercountry comparisons. The ranking of countries in graphs 21 and 22 of the earlier study (based on comparisons of the type presented here in table 2 and table 1) were not warranted by the quality of the data. Neither is it legitimate to derive intercountry comparisons from the present data.

It may seem that the conclusions of the present study are panglossian, in view of the pessimism of the earlier OECD study, but in fact the results are not surprising. The nearer countries approach to universal attendance at a particular level of education, the closer will be the convergence in degree of access by social class, particularly if the starting position is one in which the upper groups are near to saturation of their educational ambitions.

In the 1960s, the expansion of higher education in OECD countries reached unprecedented levels. The average annual increase in the rate of attendance (i.e. after removal of the influence of population change) in OECD countries was 7 per cent a year, which means a doubling in the rate of attendance in the decade. The figures for individual countries can be seen in table 10. The overall rate of access to all higher education for all social classes in 1970 is shown in table 11.

Table 1

DISTRIBUTION OF STUDENTS AND MALE ACTIVE

	YEAR	STUDENTS BY CATEGORY I							
Country	S = Students M = Manpower	A	B	C	D	E	Armed Forces		Other
Austria	S.1965-66;M.1961	32.4	31.8	2.4	14.9	5.5	-		13.0
	S.1970-71;M.1972	27.1	35.2	5.6	11.6	10.8	-		9.7
Belgium[1]	S.1962-63;M.1961	30.0	15.0	5.5	17.7	22.8	-		9.0
	S.1966-67;M.1961	32.3	18.3	5.3	15.7	22.8	-		5.6
Denmark[2]	S.1964-65;M.1960	24.3	24.9	14.7	19.9	15.5	-		0.7
	S.1964-65;M.1965	24.3	24.9	14.7	19.9	15.5	-		0.7
Finland	S.1969; M.1970	27.3	20.3	23.0	-	21.3	-		8.1
France	S.1959-60;M.1959	29.8	29.9	5.0	18.1	4.0	-		13.2
	S.1964-65;M.1964	30.2	17.1	5.5	15.2	9.0	-		13.0
	S.1968-69;M.1968	27.1	24.0	6.6	13.2	12.3	-		16.8
	S.1973-74;M.1968	30.2	24.5	6.1	11.8	12.3	-		15.1
Germany	S.1952-53;M.1952	38.3	22.9	34.1		4.4	-		0.3
	S.1958-59;M.1958	35.1	27.0	31.0		5.2	-		1.7
	S.1961-62;M.1961	34.2	29.0	30.5		5.4	-		0.9
	S.1964-65;M.1964	32.8	30.3	30.2		5.3	-		1.4
	S.1970-71;M.1971	26.2	35.7	24.9		12.6	-		0.6
Greece[3]	S.1959-60;M.1961	17.0	20.5	22.6	-	12.1	3.3		24.4
	S.1963-64;M.1961	15.8	21.9	23.3	-	12.0	3.0		24.0
	S.1970-71;M.1971	12.8	27.0	27.0	-	21.2		12.0	
Ireland[4]	S.1961; M.1961	33.9	16.5	10.3	-	8.3	-		31.0
Italy[5]	S.1953-54;M.1951	19.0	44.3	23.9		11.4	-		1.4
	S.1960-61;M.1961	12.3	44.3	25.5		13.3	-		4.6
	S.1964-65;M.1964	11.6	39.9	24.9		15.4	-		8.2
	S.1967-68;M.1969	9.4	39.5	23.9		19.6	-		7.6
Japan	S.1952; M.1955	43.7	26.3	14.1	-	8.7	-		7.2
	S.1961; M.1960	52.8	24.5	10.9	-	8.7	-		3.1
Luxembourg[5]	S.1964-65;M.1960	27.3	37.9	5.1	18.2	3.2	-		8.3
	S.1972-73;M.1966	26.2	37.7	7.3	14.0	9.4	-		5.4
Netherlands	S.1954-55;M.1954	47.0	23.0	5.0	18.0	7.0	-		-
	S.1958-59;M.1958	48.1	23.0	5.0	14.6	7.5	-		1.8
	S.1961-62;M.1960	45.5	24.0	5.6	14.7	8.5	-		1.7
	S.1964-65;M.1964	42.4	26.5	5.6	14.4	9.4	-		1.7
	S.1970-71;M.1964	36.2	29.5	5.2	13.7	13.5	-		2.4
Norway[1]	S.1964-65;M.1960	33.6	11.1	12.0	-	23.9	0.7		18.7
	S.1970; M.1972	40.8	15.9	8.5	-	17.9		16.9	
Portugal	S.1963-64;M.1960	36.1	35.1	8.9	-	7.4	5.9		6.6
Spain[6]	S.1956-57;M.1956	35.8	39.0	6.9	-	3.5	5.0		9.8
	S.1958-59;M.1958	35.9	38.0	4.6	-	6.6	5.0		9.9
	S.1962-63;M.1960	32.8	28.5	4.4	22.0	7.5	-		4.8
	S.1970; M.1970	32.0	[illegible]	6.9	13.4	11.3	-		7.0
Sweden[7]	S.1960-61;M.1960	31.1	29.5	9.2	11.9	14.3	-		4.0
Switzerland	S.1959-60;M.1960	51.1	24.1	5.0	-	15.2	-		4.6
United Kingdom[8]	S.1960; M.1961	62.9	9.9	-	-	27.2	-		-
(England and Wales)	S.1971; M.1971	28.5	19.2	-	-	48.4	-		3.9
United States[9]	S.1958; M.1958	52.4	9.6	10.6	-	25.6	-		0.8
	S.1965; M.1965	37.0	20.0	8.0	-	34.0	-		1.0
Yugoslavia[10]	S.1960-61;M.1961	36.0	2.3	20.4	-	18.2	-		23.1
	S.1965-66;M.1967(M)	17.9	16.5	18.3	-	19.0	2.2		26.1
	S.1969-70;M.1971	19.2	21.2	17.6	-	30.1	-		11.9

POPULATION BY SOCIO-ECONOMIC CATEGORY

Table 1

MALE ACTIVE POPULATION BY CATEGORY
II

A		B	C		D	E	Armed Forces		Other	Country
7.4		11.8	9.8		6.7	63.7	-		0.6	Austria
	37.0			15.9		45.7	-		1.4	
10.0		10.6	7.9		13.8	55.1	-		2.6	Belgium[1]
10.0		10.6	7.9		13.8	55.1	-		2.6	
9.0		16.0	15.0		17.0	43.0	-		-	Denmark[2]
9.2		11.0	11.4		10.3	52.1	1.2		4.8	
9.8		14.4	23.1		-	51.6	-		1.1	Finland
4.5		16.4	16.2		10.7	48.9	-		3.3	France
5.4		17.3	13.7		9.8	50.1	-		3.7	
6.0		19.6	11.5		9.5	50.1	-		3.3	
6.0		19.6	11.5		9.5	50.1	-		3.3	
6.1		14.9		18.1		56.6	-		4.2	Germany
7.7		17.1		16.2		55.5	-		3.4	
8.5		17.8		15.5		55.1	-		3.0	
9.2		18.5		14.8		54.7	-		2.8	
7.3		25.0		12.8		53.4	-		1.5	
4.4		12.2	48.0		-	26.5	6.5		2.4	Greece[3]
4.4		12.2	48.0		-	26.5	6.5		2.4	
6.0		21.0	35.7		-	34.8		2.5		
10.0		9.7	25.4		-	50.3	-		4.6	Ireland[4]
2.4		9.3		24.4		63.9	-		-	Italy[5]
1.7		11.2		22.2		64.9	-		-	
1.7		13.0		25.7		59.6	-		-	
1.6		14.5		24.9		59.0	-		-	
8.9		19.2	33.1		-	38.2	-		0.8	Japan
8.7		20.6	25.6		-	44.2	-		0.9	
7.6		11.6	13.8		6.3	59.5	-		1.2	Luxembourg[5]
5.2		24.1	8.7		4.5	52.2	-		5.3	
5.5		11.1	7.6		10.8	64.7	-		0.2	Netherlands
6.0		11.7	7.0		9.7	65.3	-		0.3	
6.2		12.1	6.7		9.2	65.5	-		0.3	
6.7		12.7	6.1		8.0	66.2	-		0.3	
6.7		12.7	6.1		8.0	66.2	-		0.3	
10.4		9.1	24.0		-	55.4	1.1		-	Norway[1]
16.7		16.5	12.7		-	53.1		1.0	-	
3.1		10.8	2.6		-	79.2	1.5		2.8	Portugal
3.1		12.1	14.7		-	70.3	1.6		1.3	Spain[6]
3.2		12.6	14.1		-	70.3	1.6		1.4	
4.5		9.5	13.5		4.1	66.8	-		1.6	
5.7		14.0	14.2		9.7	51.9	-		4.5	
4.5		20.0	15.1		7.4	53.0	-		-	Sweden[7]
9.7		16.1	15.0		-	59.1	-		0.1	Switzerland
21.5		7.0	-		-	71.5	-		-	United Kingdom[8]
16.9		24.8	-		-	56.2	-		2.1	(England and Wales)
22.9		12.8	6.9		-	57.4	-		-	United States[9]
25.5		12.8	7.1		-	54.6	-		-	
9.3		3.2	50.6		-	35.9	-		1.0	Yugoslavia[10]
8.8		7.1	54.9		-	28.0	1.1		-	
7.9		7.8	37.8		-	36.8	-		9.6	

Table 1 (cont.) DISTRIBUTION OF STUDENTS AND MALE ACTIVE

		SELECTIVITY RATIO I: II							
Country	S = Students M = Manpower	A		B	C		D	E	Armed forces
Austria	S.1965-66;M.1961	4.4		2.7	0.24		2.2	0.086	-
	S.1970-71;M.1972		1.7			1.1		0.24	-
Belgium[1]	S.1962-63;M.1961	3.0		1.4	0.70		1.3	0.41	-
	S.1966-67;M.1961	3.2		1.7	0.67		1.1	0.41	-
Denmark[2]	S.1964-65;M.1960	2.7		1.6	1.0		1.2	0.36	-
	S.1964-65;M.1965	2.6		2.3	1.3		1.9	0.30	-
Finland	S.1969; M.1970	2.8		1.4	1.0		-	0.41	-
France	S.1959-60;M.1959	6.6		1.8	0.31		1.7	0.08	-
	S.1964-65;M.1964	5.6		1.6	0.40		1.6	0.18	-
	S.1968-69;M.1968	4.5		1.2	0.57		1.4	0.25	-
	S.1973-74;M.1968	5.0		1.3	0.53		1.2	0.25	-
Germany	S.1952-53;M.1952	6.3		1.5		1.9		0.078	-
	S.1958-59;M.1958	4.6		1.6		1.9		0.094	-
	S.1961-62;M.1961	4.0		1.6		2.0		0.098	-
	S.1964-65;M.1964	3.6		1.6		2.0		0.097	-
	S.1970-71;M.1971	3.6		1.4		1.9		0.24	-
Greece[3]	S.1959-60;M.1961	3.9		1.7	0.47		-	0.46	0.51
	S.1963-64;M.1961	3.6		1.8	0.49		-	0.45	0.46
	S.1970-71;M.1971	2.1		1.3	0.76		-	0.61	4.8
Ireland[4]	S.1961; M.1961	3.4		1.7	0.41		-	0.16	-
Italy[5]	S.1953-54;M.1951	7.9		4.8		0.98		0.18	-
	S.1960-61;M.1961	7.2		4.0		1.1		0.20	-
	S.1964-65;M.1964	6.8		3.1		0.97		0.26	-
	S.1967-68;M.1969	5.9		2.7		0.96		0.33	-
Japan	S.1952; M.1955	4.9		1.4	0.43		-	0.23	-
	S.1961; M.1960	6.1		1.2	0.43		-	0.20	-
Luxembourg[5]	S.1964-65;M.1960	3.6		3.3	0.37		2.9	0.05	-
	S.1972-73;M.1966	5.0		1.6	0.84		3.1	0.18	-
Netherlands	S.1954-55;M.1954	8.5		2.1	0.65		1.7	0.11	-
	S.1958-59;M.1958	8.0		2.0	0.72		1.5	0.11	-
	S.1961-62;M.1960	7.3		2.0	0.83		1.6	0.13	-
	S.1964-65;M.1964	6.3		2.1	0.92		1.8	0.14	-
	S.1970-71;M.1964	5.4		2.3	0.85		1.7	0.20	-
Norway[1]	S.1964-65;M.1960	3.2		1.2	0.50		-	0.43	0.64
	S.1970; M.1972	2.4		0.96	0.67		-	0.34	16.9
Portugal	S.1963-64;M.1960	11.6		3.3	3.4		-	0.093	3.9
Spain[6]	S.1956-57;M.1956	11.5		3.2	0.47		-	0.050	3.8
	S.1958-59;M.1958	11.2		3.0	0.33		-	0.094	3.1
	S.1962-63;M.1960	7.3		3.0	0.33		5.4	0.11	-
	S.1970 ; M.1970	5.6		2.1	0.49		1.4	0.22	-
Sweden[7]	S.1960-61;M.1960	6.9		1.5	0.61		1.6	0.27	-
Switzerland	S.1959-60;M.1960	5.3		1.5	0.33		-	0.26	-
United Kingdom[8] (England and Wales)	S.1960; M.1961	2.9		1.4	-		-	0.38	-
	S.1971; M.1971	1.7		0.77	-		-	0.86	-
United States[9]	S.1958; M.1958	2.3		0.75	1.5		-	0.46	-
	S.1965; M.1965	1.5		1.6	1.1		-	0.62	-
Yugoslavia[10]	S.1960-61;M.1961	3.9		0.72	0.40		-	0.51	-
	S.1965-66;M.1967(M)	2.0		2.3	0.33		-	0.66	2.0
	S.1969-70;M.1971	2.4		2.7	0.47		-	0.82	-

POPULATION BY SOCIO-ECONOMIC CATEGORY

Table 1 (cont.)

		DIFFERENCE I and II					
A	B	C		D	E	Other	Countries
25.0	20.0	7.4		8.2	58.2	12.4	Austria
25.3			1.3		34.9	8.3	
20.0	4.4	2.4		3.9	32.3	6.4	Belgium
22.3	7.7	2.6		1.9	32.3	3.0	
15.3	8.9	0.3		2.9	27.5	0.7	Denmark
15.1	13.9	3.3		9.6	36.6	4.1	
17.5	5.9	0.10		-	30.3	7.0	Finland
25.3	13.5	11.2		7.4	44.9	9.9	France
24.8	9.8	8.2		5.4	41.1	9.3	
21.1	4.4	4.9		3.7	37.8	13.5	
24.2	4.9	5.4		2.3	37.8	11.8	
32.2	8.0		16.0		52.2	3.9	Germany
27.4	9.9		14.8		50.3	1.7	
25.7	11.2		15.0		49.6	2.1	
23.6	11.8		15.4		49.4	1.4	
18.9	10.7		12.1		40.8	0.9	
12.6	18.3	25.4		-	14.4	18.8	Greece
11.4	9.7	24.7		-	13.5	18.1	
6.8	6.0	8.7		-	13.6	9.5	
23.9	6.8	15.1		-	42.0	26.4	Ireland
16.6	35.0		0.5		52.5	1.4	Italy
10.6	33.1		3.3		51.6	4.6	
9.9	26.9		0.8		44.2	8.2	
7.8	25.0		1.0		39.4	7.6	
34.8	7.1	19.0		-	29.5	6.4	Japan
44.1	3.9	14.7		-	35.5	2.2	
19.7	26.3	8.7		11.9	56.3	6.1	Luxembourg
21.0	13.6	1.4		9.5	42.8	0.1	
41.5	11.9	2.6		7.2	57.7	0.2	Netherlands
42.1	11.3	2.0		4.9	57.8	1.5	
39.3	11.9	1.1		5.5	57.0	1.4	
35.7	13.8	0.5		6.4	56.8	1.4	
29.5	16.8	0.9		5.7	52.7	2.1	
23.2	2.0	12.0		-	31.5	18.3	Norway
24.1	0.6	4.2		-	35.2	15.9	
33.0	24.3	6.3		-	71.8	8.2	Portugal
32.7	26.9	7.8		-	66.8	11.9	Spain
32.7	25.4	9.5		-	63.7	11.9	
28.3	19.0	9.1		17.9	59.3	3.2	
26.3	15.3	7.3		3.7	40.6	2.5	
26.6	9.5	5.9		4.5	38.7	4.0	Sweden
41.4	8.0	10.0		-	43.9	4.5	Switzerland
44.4	2.9	-		-	44.3	-	United Kingdom (England and Wales)
11.6	5.6	-		-	7.8	1.8	
29.5	3.2	3.7		-	30.8	0.8	U.S.A.
11.5	7.2	0.9		-	20.6	1.0	
26.7	0.9	30.2		-	17.7	22.1	Yugoslavia
9.1	9.4	36.6		-	9.0	27.2	
11.3	13.4	20.2		-	6.7	2.3	

Table 2

Relative Chances of Access to Higher Education for A Stratum as compared with E Stratum Youth

	Relative Chance of A ÷ E stratum (around 1960)	Relative Year for		Relative Chance of A ÷ E Stratum (more recent data)	Reference Year for	
		Students	Labour Force		Students	Labour Force
Austria	51 : 1	1965	1961	n.a.	n.a.	n.a.
Belgium	7 : 1	1962	1961	8 : 1	1966	1961
Denmark	9 : 1	1964	1965	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	7 : 1	1969	1970
France	83 : 1	1959	1959	18 : 1	1968	1968
Germany	41 : 1	1961	1961	15 : 1	1970	1971
Greece	8 : 1	1959	1961	3 : 1	1970	1971
Ireland	21 : 1	1961	1961	n.a.	n.a.	n.a.
Italy	36 : 1	1960	1961	18 : 1	1967	1969
Japan	30 : 1	1961	1960	n.a	n.a.	n.a.
Luxembourg	72 : 1	1964	1960	28 : 1	1972	1966
Netherlands	56 : 1	1961	1960	27 : 1	1970	1964
Norway	7 : 1	1964	1960	7 : 1	1970	1972
Portugal	125 : 1	1963	1960	n.a.	n.a.	n.a.
Spain	66 : 1	1962	1960	25 : 1	1970	1970
Sweden	26 : 1	1960	1960	n.a.	n.a.	n.a.
Switzerland	20 : 1	1959	1960	n.a.	n.a.	n.a.
United Kingdom	8 : 1	1960	1961	2 : 1	1971	1971
United States	5 : 1	1958	1958	2 : 1	1965	1965
Yugoslavia	8 : 1	1960	1961	3 : 1	1969	1971

For explanatory notes see **Annex**.

Table 3

Relative Chances of Access to Higher Education for Youth from the Upper and Middle Strata as Compared with those from the Lower Strata

	Relative Chance of (A+B) ÷ (C+D+E) strata (around 1960)	Reference year for		Relative Chance of (A+B) ÷ (C+D+E) strata (more recent data)	Reference year for	
		Students	Labour force		Students	Labour force
Austria	11.8	1965	1961	3.8	1970	1972
Belgium	3.7	1962	1961	4.6	1966	1961
Denmark	3.5	1964	1965	n.a	n.a	n.a
Finland	n.a	n.a	n.a	3.4	1969	1970
France	8.1	1959	1959	5.0	1973	1968
Germany	4.7	1961	1961	3.3	1970	1971
Greece	4.9	1959	1961	2.2	1970	1971
Ireland	10.4	1961	1961	n.a	n.a	n.a
Italy	9.8	1960	1961	5.8	1967	1969
Japan	9.3	1961	1960	n.a	n.a	n.a
Luxembourg	10.3	1964	1960	4.5	1972	1966
Netherlands	10.9	1961	1960	8.5	1970	1964
Norway	5.1	1964	1960	5.3	1970	1972
Portugal	21.8	1963	1960	n.a	n.a	n.a
Spain	11.0	1962	1960	7.4	1970	1970
Sweden	5.3	1960	1960	n.a	n.a	n.a
Switzerland	10.7	1959	1960	n.a	n.a	n.a
United Kingdom	6.8	1960	1961	1.4	1971	1971
United States	2.9	1958	1958	2.2	1965	1965
Yugoslavia	6.9	1960	1961	4.0	1969	1971

For explanatory notes see Annex.

Table 4

Indices of Dissimilarity between Distributions of Students and of Male Active Population

Country	Index (around 1960)	Reference Students	Year for Labour Force	Index (more recent data)	Reference Students	Year for Labour Force
Austria	65.6	1965	1961	34.9	1970	1972
Belgium	34.7	1962	1961	34.9	1966	1961
Denmark	41.3	1964	1965	n.a.	n.a.	n.a.
Finland	n.a.	n.a.	n.a.	30.4	1969	1970
France	56.1	1959	1959	42.7	1968	1968
Germany	51.8	1961	1961	41.7	1970	1971
Greece	44.8	1959	1961	22.3	1970	1971
Ireland	57.1	1961	1961	n.a.	n.a.	n.a.
Italy	51.6	1960	1961	40.4	1967	1969
Japan	50.2	1961	1960	n.a.	n.a.	n.a.
Luxembourg	64.5	1964	1960	44.2	1972	1966
Netherlands	58.1	1961	1960	53.9	1970	1964
Norway	43.5	1964	1960	40.0	1970	1972
Portugal	71.8	1963	1960	n.a.	n.a.	n.a.
Spain	68.4	1962	1960	47.9	1970	1970
Sweden	44.6	1960	1960	n.a.	n.a.	n.a.
Switzerland	53.9	1959	1960	n.a.	n.a.	n.a.
United Kingdom	44.3	1960	1961	13.4	1971	1971
United States	34.0	1958	1958	20.6	1965	1965
Yugoslavia	48.8	1960	1961	27.0	1969	1971

For explanatory notes see Annex.

Table 5
Ratio of Male to Female Enrolment in Higher Education

Austria	1970	2.5
Belgium	1965	1.9
Denmark	1970	1.7
Finland	1970	1.1
France	1965	1.5
Germany	1970	3.1
Greece	1969	(2.3)
Ireland	1965	2.4
Italy	1970	1.6
Japan	1970	2.5
Luxembourg	1970	(2.3)
Netherlands	1970	2.6
Norway	1970	1.7
Portugal	1970	1.2
Spain	1970	2.5
Sweden[a]	1970	1.7
Turkey	1970	4.1
U.K.	1970	1.9
Yugoslavia	1969	1.5

a University only
( ) Estimates

Source: derived from OECD *Educational Statistics Yearbook*, table 11, Paris, 1974.

Table 6

Distribution of Students by Socio-Economic Category and Sex

	Reference Year		Students by Categories (Percentages)					
			A	B	C	D	E	Others
Austria	1970/71	M	24.7	36.1	6.2	11.7	12.0	9.4
		F	32.7	32.9	4.3	11.6	8.2	10.3
France	1968/69	M	27.4	24.0	6.2	12.6	12.5	17.2
		F	26.6	24.1	7.1	13.8	12.1	16.3
Germany	1970/71	M	24.1	34.5	25.8		13.3	2.3
		F	26.8	33.3	27.6		10.0	2.3
Italy	1967/68	M	8.9	37.7	24.3		20.9	8.2
		F	10.2	42.4	23.1		17.3	6.9
Netherlands	1970/71	M	32.7	30.3	5.6	14.1	15.0	2.3
		F	46.4	26.4	3.7	12.5	8.1	2.9
Norway	1970	M	38.3	15.6	8.9	-	20.1	17.1
		F	45.6	16.4	7.8	-	13.5	16.7

Table 7

Relative Chances of Access to Higher Education by Sex for A Stratum as compared with E Stratum Youth

	Relative Chance of A : E Stratum	
	Females	Males
Austria	n.a.	n.a.
France	18:1	18:1
Germany	19:1	13:1
Italy	22:1	16:1
Netherlands	57:1	21:1
Norway	11:1	6:1

Note: Methodology as for table 2. Calculations based on most recent data available.

Table 8

Relative Chances of Access to Higher Education by Sex for Youth from the Upper and Middle Strata as Compared with those from the Lower Strata

	Relative Chances of (A+B) : (C+D+E) Strata	
	Females	Males
Austria	4.5	3.4
France	4.3	4.6
Germany	3.3	3.1
Italy	6.8	5.4
Netherlands	12.4	7.5
Norway	5.8	3.7

Note: Methodology as for table 3. Calculations based on most recent data available.

Table 9

Indices of Dissimilarity between Social Distribution of Male and Female Students

Austria : 9.0
France : 2.2
Germany : 4.5
Italy : 6.1
Netherlands : 14.3
Norway : 8.1

Note: Methodology as for table 4.

Table 10

Growth of Enrolment and Enrolment Rates in Higher Education and Growth in Population of Revant Age 1960-70

	Population of Relevant Age[a]	Enrolment	Enrolment Rate
		Annual average compound growth rates	
Austria	- 0.5	4.8	5.3
Belgium	2.6	9.1[b]	8.3[b]
Canada	4.4	11.3	6.6
Denmark	3.4	9.3	5.7
Finland	2.9	7.9*	4.9*
France	4.1	11.2	7.1
Germany	- 2.1	7.3	9.6
Greece	- 0.1	(12.0)[c]*	(12.1)[c]*
Italy	0.1	9.5	9.4
Japan	2.0	9.0	6.9
Luxembourg	n.a.	5.6	n.a.
Netherlands	3.4	7.8	4.3
Norway	4.2	(9.1)	4.7
Portugal	- 0.8	8.1	9.0
Spain	1.1	9.4	8.2
Switzerland	n.a.	7.1[d]	n.a.
Turkey	3.0	9.5	6.3
U.K.	2.4	10.0	7.4
U.S.A.	4.1	8.3[f]*	4.0[e]*
Yugoslavia	0.6[g]	6.4	5.8

a The age spread typical of participants in higher education

b 1960-1966

c 1960-1969

d 1961-1969

e 1959-1970

f Degree credit students only

g 1961-1970

() Estimates

N.B. The figures refer to full-time enrolment except those which are asterisked which refer to full and part-time enrolment.

Source: Educational Statistics Yearbook, OECD, Paris 1974.

Table 11

Annual Entry to Higher Education as a Percentage of the Relevant Age Group in 1970

Australia	23.5	Japan	23.8
Austria	16.0	Netherlands	18.3
Belgium	28.5	Norway	27.5
Canada	33.6	Portugal	6.6
Denmark	26.0	Spain	18.1
Finland	18.3	Sweden	37.6
France	22.4	Turkey	5.1
Germany	15.8	U.K.	20.6
Italy	24.1	U.S.A.	46.5
		Yugoslavia	29.1

Source: *Educational Statistics Yearbook*, table 25, O.E.C.D., Paris, 1974.

ANNEX

Source Notes for Tables 1 - 4

Table 1

Most of the data in table 1 are derived from Group Disparities in Educational Participation and Achievement. Conference on Policies for Educational Growth, OECD, Paris 1971; Vol.IV, Annex A. For 14 countries later data were available from the sources indicated below.

AUSTRIA

Sources: Students 1970/71: Österreichische Hochschulstatistik II, 1970/71. Labour Force..1972: Statistisches Handbuch für die Republik Osterreich, 1973.

Student data for 1970/71 refer to new entrants of Austrian nationality only, in the winter-semester 1970/71 and the summer-semester 1971. They comprise all higher education except art colleges.

Data have been reclassified by social categories as follows :

A : Professionals, higher-level employees; B : Other employees; C : Self-employed in agriculture; D : Other self-employed; E : Workers.

For the male active population the percentage of self-employed professionals has been assumed to have remained constant (2.5%) between 1961 and 1972. Labour force data for 1972 are not strictly comparable with earlier figures, as they are taken from different sources.

DENMARK

Male active population by occupational categories for 1965 taken from Yearbook of Labour Statistics 1972, International Labour Office, Geneva.

Data have been reclassified as follows:

A : Professional, technical and related workers; administrative, executive and managerial workers; B : Clerical workers; Sales workers - employees only; C : Farmers, fishermen and related workers - employers only; D : Sales workers - employers only; workers in transport and communication - employers only; craftsmen, production process workers - employers only; service workers - employers only; E : Farmers, fishermen and related workers - except employers, workers in transport and communication - except employers; craftsmen, production process workers - except employers; service workers - except employers.

FINLAND

Sources: Students: Finland and its Students, National Union of Finnish Students, Helsinki, 1970. Labour Force: United Nations, Demographic Yearbook, 1972.

Data have been reclassified as follows:

Social Strata (table 1)	Student classification	Labour Force classification (according to ISCO)
A	Professional	0-1
B	White collar	2,3,4,5
C	Farmers, Fishermen	6
D	-	-
E	Blue collar	7-8-9

FRANCE

Sources: Students 1968/69: Ministère de l'Education Nationale, Effectifs Universitaires au 31.3.1969, Doc. 4008, Paris 1971.

Students 1973/74: "Le Monde", 29.8.1974. Labour Force 1968: INSEE: Annuaire Statistique de la France, 1972.

Data have been reclassified as follows:

A : Professions (including secondary and university teachers), higher-level employees. B : Middle-level employees (including primary school teachers), other employees (including service personnel). C : Proprietors in agriculture. D : Industrialists, tradesmen, artisans. E : Workers in agriculture, other workers.

GERMANY

Sources: Students 1970/71: Statistisches Bundesamt. Bevölkerung und Kultur, V. Studenter an Hochschulen, Winter-semester 1970/71. Labour Force 1971: Statistisches Jahrbuch 1973.

Student data refer to new entrants into higher education in the winter-semester 1970/71 only. Labour force data are the results of the regular household sample survey (Mikrozensus), April 1971.

Classification: A : Civil Servants B : Employees. C + D: Independent Workers. E : Workers.

GREECE

Sources: Students 1970/71: National Statistical Office of Greece. Education Statistics 1970/71, Higher Education, Athens, 1974. Labour Force 1971: United Nations, Demographic Yearbook, 1972.

Both statistics show the same breakdown according to the ISCO-classification. No separate data are given for category D - they are included partly in A, partly in E.

Social Strata	ISCO- classification
A	0-1,2
B	3,4,5
C	6
D	-
E	7-8-9

ITALY

Sources: Students 1967/68: Annuario Statistico dell' Istruzione Italiana, 1970. Labour Force 1969: Annuario Statistico Italiano, 1971.

Student data refer to first-year students in 1967/68 only.

Classification: A : Industrialists, **traders, professions.** B : Managers, senior executives. C + D : Self-employed workers. E : Salaried and family workers.

LUXEMBOURG

Sources: Students 1972/73: Courrier de l'éducation nationale, Statistiques, Enseignement universitaire et Institut pédagogique; No. B-3-73, Luxembourg, October 1973. Labour Force 1966: Annuaire Statistique Retrospectif 1973; Service Central de la Statistique et des Etudes Economiques. Luxembourg, 1973.

Classification of Students: A : Higher administrators and civil servants; teaching personnel; higher level private employees; liberal professions. B : Other administrators and civil servants; other private employees. C : Farmers. D : Craftsmen and shopkeepers. E : Workers.

Classification of Labour Force: A : Industrialists, managers; liberal professions. B : All employees. C : Independent farmers. D : All other independent not included in A or C. E : All workers.

NETHERLANDS

Sources: Students 1970/71: Netherlands Central Bureau of Statistics. Statistics on University Education 1970/71. The Hague, 1972. The data refer to first-year students only!
As no new data on the labour force were available, the latest figures (1964) were taken as reference basis.

Classification of students: A : Academic and liberal professions; teachers in secondary and higher education; industrialists. B : All employees; teachers in primary education. C : Independent farmers. D : Other independent. E : All workers.

NORWAY

Sources: Students 1970: Central Bureau of Statistics. Educational Statistics, Universities, Autumn term 1970, Oslo, 1973. Labour Force 1972: Central Bureau of Statistics. Labour Market Statistics 1973, Oslo, 1974.

Student data refer to new students only; they classify students by bread-winner's (father or mother) occupation.

Classification for students and labour force according to ISCO.

Social Strata	ISCO- classification
A	0-1,2
B	3,4,5
C	6
D	-
E	7-8-9

SPAIN

Source for Students and Labour Force 1970: Instituto Nacional de Estadistica. Censo de la Poblacion de Espana 1970, Tomo III. Madrid, 1974.

Student and Labour Force data follow the same classification and are therefore fully consistent. However, they are not comparable with earlier figures due to a revision of classification.

UNITED KINGDOM

Sources: Students 1971: Office of Population Censuses and Surveys. The General Household Survey - Introductory Report. London, H.M.S.O. 1973.
Labour Force 1971: United Nations, Demographic Yearbook, 1972.

Data on students refer to full-time students aged 15-49 (living in their father's household) in colleges of further education, colleges of education and universities. They are comparable neither with other countries nor with earlier U.K. figures as they include some students in secondary education (colleges of further education). Data for higher education only were not available.

Classification: A : Professionals; Employers and managers. B : Intermediate and junior non-manual. C : - , D : - , E : Skilled manual (incl. foremen and supervisors), own-account non-professionals; semi-skilled and unskilled manual and personal service workers. Labour Force classified according to ISCO.

UNITED STATES

Sources: Students 1965: S.E. Harris, A Statistical Portrait of Higher Education. The Carnegie Commission on Higher Education, Berkeley, California, 1972. Labour Force 1965: U.S. Department of Commerce, Statistical Abstract of the United States, 1973.

Student data refer to graduate students only.

Classification of students: A : Professionals (except educators); proprietors, managers. B : Semi-professionals, teachers and other educators. C : Farm operators. D : - E : Skilled craftsmen, semi-skilled operatives; service workers; labourers.
Classification of Labour Force: A : Professional and technical workers; managers and administrators. B : Sales workers; clerical workers. C : Farm workers. D : - E : Craftsmen and kindred workers; operatives; non-farm labourers; service workers.

YUGOSLAVIA

Sources: Students 1969/70: Federal Institute of Statistics. Higher Education (Visoke Skole), 1969/70. Labour Force: United Nations, Demographic Yearbook, 1972.

Classification: A : Professions; administrative and managerial workers. B : Clerical and related workers; Sales workers. C : Agricultural, forestry workers. D : - E : Service workers, transport workers, production and related workers, miners.

Table 2

The relative chance of children from the upper stratum as compared with the ones from the lower stratum is obtained by dividing the selectivity ratio (see table 1) for stratum A by the one for stratum E.

Example: Finland (1969/70)

$2.8 : 0.41 = \underline{6.8}$ The relative chance (rounded) is 7:1

Table 3

The figures are obtained by dividing the selectivity ratio of the two upper strata A and B by that of the three lower strata C, D and E.

Example: Finland (1969/70)

selectivity ratio for strata (A + B) :

$(27.3 + 20.3) : (9.8 + 14.4) = \underline{2.0}$

selectivity ratio for strata (C + D + E) :

$(23.0 + 21.3) : (23.1 + 51.6) = \underline{0.59}$

selectivity ratio (A + B) : selectivity ratio (C + D + E) = relative chance of access to higher education

$2.0 : 0.59 = \underline{3.39}$

Thus the average chance of going to higher education is about 3.4 times higher for the privileged groups in society (non-manual workers normally) than for the underprivileged groups (manual workers).

Table 4

The index of dissimilarity is calculated by summing up the absolute differences between the percentage values of students and male labour force in each social category for the whole distribution, and dividing the obtained total by two. The absolute differences for each category are given in table 1.

Example: Finland (1969/70)

$(17.5 + 5.9 + 0.1 + 30.3 + 7.0) : 2 = \underline{30.4}$

The index of dissimilarity measures the discrepancy between the social distribution of the student population and the male active population. It is larger the more dissimilar the relative distributions are and vice versa. It expresses the percentage of students (or of the male labour force) which would have to shift to another socio-economic category to allow for equality of the two distributions).

On the Assessment of Income Distribution

A Comment on the Secretariat Papers

by

Irving B. Kravis(1)

An assessment of the three Secretariat papers summarizing our knowledge of the inequalities in the distribution of personal income, education, and educational opportunities, leads to fundamental questions about the appropriate framework and goals of public policy in the field of education, inequality, and life chances. Without a clear perception of the targets and instruments of public policy, the adequacy of our statistical knowledge cannot be evaluated nor the necessary improvements suggested.

In this comment, I seek to outline some of the issues relevant to these matters, to review and extend somewhat Mr. Shannon's summary of the state of our knowledge about the distribution of income, and on the basis of what income distribution data indicate, raise some policy issues about distributional objectives. I shall throughout concentrate on income distribution since this is to an important degree the focus on the policy objectives considered in this conference.

Public policy objectives and instruments

What we want to know about the distribution of income depends on what we consider to be the objectives of public policy and the possible means of working toward the selected ends.

Distributional policies may range from relatively limited objectives such as rectifying obvious injustices in the distribution of education, opportunity and income, to broader goals involving notions of distributive justice for all groups. U.S. policy, for example, has been focussed mainly on low income groups who have been excluded from the general affluence of the society, while Sweden, according to Professor Lindbeck's report, has in recent years, at least, pursued objectives involving middle income brackets as well as particular socio-economic groups such as pensioners and the handicapped.

The identification of disadvantaged groups is not without conceptual and practical difficulties, but much greater difficulties are encountered in the effort to formulate an underlying rationale for distributional objectives for society as a whole. What is needed is a working concept of distributive justice that has to be defined in terms of welfare content (income, access to political power, social position, etc.), recipient units (individual worker or household or family unit), and criteria for the ideal distribution of welfare among the recipients. Even such a seemingly clear-cut criterion as complete equality is not without its thorny aspects. Is complete equality in the distribution of income, for example, consistent with differences in individual

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1) I am grateful to Helen Hirschfeld for having performed the statistical work for this paper.

choices between work (along with its material rewards) and leisure? Professor H.G. Johnson has argued that much of the observed inequality in incomes serves the function of providing opportunities for individuals to make work-leisure and other choices such as those among occupations with different degrees of risk; in addition, inequality in the distribution for a particular year will arise from age-patterns of earning and spending(1).

A satisfactory criterion of distributive justice must also take into account the need to provide incentives. The theoretical guideline recently offered by Rawls meets this requirement: only those inequalities are justified without which the least favoured members of society would be still worse off(2). The older and more familiar utilitarian criterion of maximizing satisfactions summed over all individuals is consistent with economic growth in which all or most of the gains go to the favoured few, and it is precisely this which many fear has been happening, particularly in developing countries. These fears and the concomitant claims that the poor have actually been getting poorer are, as we shall see, exaggerated, but the focus of attention has shifted from growth in general to the fortunes of the lowest income groups and to distributional problems more generally.

The assumption of equal marginal utility of income for all individuals implicit in the classical utilitarian approach and the concentration of attention exclusively on the least favoured group proposed by Rawls are in a sense extremes. Intermediate positions are possible although less grounded in moral philosophy and of a more arbitrary character. For example, Ahluwalia and Chenery have recently proposed an interesting compromise which involves the assignment of "equal social value to a one per cent increase in income for any member of society"(3).

The need to grapple with these issues is just beginning to make its way into discussion of public policy. Perhaps until recently the degree of inequality in most or all OECD countries was so great that the goal of more equality in every dimension--money income, education, health care, social mobility, etc.--could be pursued without very clear specifications about the desired degree and content of equality. Possibly this is still true. Clearly, the authors and other participants at this conference almost unanimously still give the answer "more equality," despite the wide differences in the degrees of equality that exist in the distribution of income among the countries

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1) H.G. Johnson, "Some Micro-Economic Reflections on Income and Wealth Inequalities," Annals of the American Academy of Political and Social Science, September 1973.

2) J. Rawls, A Theory of Justice, Belknap Press, Cambridge, Mass., 1971.

3) In H. Chenery, M.S. Ahluwalia, C.L.G. Bell, J.H. Duloy, and R. Jolly, Redistribution with Growth, Oxford Press, 1974, p. 40.

represented(1). There is indeed little hard evidence thus far, either intertemporal or cross sectional, that more equality has inhibited growth among the OECD countries. Yet there are a few hints of doubt, one of the most explicit at this conference being that of Professor Watanabe(2).

There is evidence too that as the grosser differences in income and opportunity are overcome, closer attention is being given to the nature of the egalitarian objectives which should be sought. More equality in access to education, for example, has been followed by arguments for compensatory education to achieve equality of outcome in the education of persons of different social origins and abilities(3).

Turning now from objectives to instruments, it is obvious that almost any government action has distributional consequences. However, the main direct instruments for achieving distributional objectives per se fall into three categories: influencing factor incomes (support for farmers, minimum wages), money transfers from people (taxes) or to them (welfare payments, pensions), and services in kind (public education, socialized medical care).

Statistical needs

Whatever the income distribution objectives--broad or narrow--our statistics should tell us how the functioning of markets under existing laws distribute the results of production to the various contributors to production, that is to the owners of the factors of production. It would be desirable, of course, to have a separate size distribution for each type of income paid to individuals or households--compensation of employees, interest, rent, dividends, and income from self employment. This market income distribution, as it may be termed, differs from those usually available because it excludes transfer incomes. It is this distribution that is relevant to public policies that are intended to work through their impact upon relative factor prices. It is the change in the market distribution that should, for example, be examined in order to determine the effects of the expansion of education on the distribution of incomes, a matter touched upon in the papers presented at this conference. More insight into the welfare implications of the market distribution can be obtained by converting it from a distribution of factor incomes to individual owners to a distribution of factor incomes received by households. It would be more informative to array such households in order of increasing size of per capita income.

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1) See Table 2.

2) See the discussion in his paper of the relationship in Japan between the expected life-time incomes of university and secondary school graduates.

3) In part this shift is due to a disappointment that the great expansion of education in the quarter of a century since World War II is commonly thought not to have been associated with a strong trend toward income equality.

An alternative is to relate the income of each household to some standard unit such as the number of full time equivalent adult males, thus taking account of the fact that the consumption requirements of individuals vary according to age and sex. We have used the term "factor incomes" here, but for distributional purposes it would be desirable to use a broad income concept. Mr. Shannon's paper indicates the main problem areas--capital gains, non-money income (1), and the annuitized value on wealth--and provides some data indicating their impact on measures of inequality. These supplements can be estimated in most countries only with large margins of error, but they are very unequally distributed, and even rough approximations are apt to produce a more realistic picture of the true market distribution than can be obtained by confining the data to those forms of income the distribution of which can be estimated with greater certainty.

The next logical step is to obtain what may be called social income distributions which tell us how the commodities and services produced by economic activity are distributed to households, partly as a result of the functioning of markets but also as a result of direct government interventions in distribution. A step in this direction that is commonly taken is to deduct direct taxes from individual and household incomes, and to add non-factor incomes (that is, transfer payments). However, there really is no logical reason for stopping at this point other than one of statistical convenience. To measure the net flow of commodities and services to individuals and households, it is necessary to deduct not only direct taxes but also indirect taxes, and to add not only transfers of money, but also transfers in kind, such as public education and socialized medical services. Once again we encounter uncertainties, in this case relating mainly to the valuation and assignment of government services to individuals or households. These are not intractable for government services like education and health care that clearly benefit identifiable individuals, but they are for government services which are more truly in the nature of public goods such as police protection, the provision of highways, etc. The simplest procedure is to exclude such services altogether; this presumes that they are enjoyed by individuals and households in proportion to the forms of income that are included in the distribution, an assumption that is not obviously less reasonable than alternatives that might be considered.

For most countries the market distribution and the more inclusive social distribution, linked to information about the composition of households and perhaps their social, educational and occupational status (and the status of their antecedents?), will meet likely policy needs. For some countries the connection between incomes and social characteristics may be thought necessary only or mainly for disadvantaged groups that are policy

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1) Consumption-type expenditures financed through business expense accounts should also be studied. They are quite conspicuous in some countries, and special efforts have to be made to include them. Few expenditures in Tokyo's Ginza, for example, are apt to show up in family expenditure survey data.

targets. Whatever the scope data needed, they are required, as Mr. Shannon stresses, in comparable form on a continuous basis so that the effects of policies, or the emergence of a need for new policies, can be assessed. It is important to maintain intertemporal comparability of data even if the only way to do it is to continue a less ideal set of distribution statistics side by side with a new and better one.

The data on income distribution that are available are, in most countries, far from meeting these specifications, as the Secretariat survey clearly indicates. Generally, they are by-products of statistics gathered primarily for other purposes, such as tax collection or household surveys, and are usually published with little or no alteration in concepts or scope. Tax data are usually deficient for the lower end of the income distribution and sometimes for the upper end as well; neither the legal definition of income nor the precise nature of the taxpayer unit may correspond to what is needed for income distribution data, and either or both may be altered from time to time, reducing the comparability of the statistics for different years. Survey data too usually under-account for total income although they may be adequate for the main purposes that they are intended to serve such as estimating weights for consumer price indexes.

The most commonly available income distributions from these sources relate to the distribution of before-tax income, inclusive of transfer payments. These distributions show neither the effects of the functioning of markets in distributing factor incomes nor the effects of the political process in redistributing income. They constitute much of the statistical data presented in the Secretariat paper on income distribution and they are the distributions usually cited in discussions of equality and inequality, including most of those presented by the authors of the conference papers.

The next most frequently encountered kind of distribution refers to after-tax income; these distributions are like the former ones except that direct taxes are deducted from incomes. They are not much more useful for analytical purposes than the before-tax distributions.

If income distribution is to become a focal point of public policy, surely the development of appropriate income distribution data should have a high statistical priority. This need not entail great expense. Given the extent of information currently collected by most developed countries in connection with direct taxation, social security systems, and household surveys, it should be possible to build distributions of market income and distributions of social income by matching data from different sources for particular individuals and households, or, where this is not possible, for groups of individuals or households with given social and economic characteristics. In most OECD countries this work would not require new extensive field surveys but the establishment of small research units with access to and knowledge of the country's basic data systems and some degree of statistical technique and ingenuity. It may at most require some additional questions in household surveys to provide information about the consumption of public services (e.g. education) by each household(1).

For those who wish to see public policy go beyond an examination of the delivery of commodities and services to more fundamental aspects of distributive justice, the market and social distributions will only be stops along the way to a more complete picture of the distribution of economic welfare. For example, compensation will have to be related to not only length of work but to more such subjective factors such as merit, the disutility of labour, possible desire to work longer, etc. Professor Tinbergen may well prove to be correct in the optimism he expresses in his paper about our ability to devise such measures, but for the time being at least they may be left to individual investigators rather than recommended to statistical authorities.

What the available statistics can tell us

International comparisons of size distributions of income can be focussed on trends over time or on the situations of various countries at a particular period of time. The Secretariat summary concentrates on trends; such comparisons are perhaps less vulnerable to biases arising from country to country differences in concepts and coverage. Within a country, there is, after all, some presumption that trends in equality will be correlated for income concepts that do not differ substantially, and the same is true for recipient unit concepts. However, for income concepts that do differ substantially such as before-tax income and social income, notable differences even in trends are possible. There can also be significant differences between the movement of equality for the distribution of individual incomes and equality for the distribution of family incomes, as Mr. Shannon reports for the U.S. during the last two decades.

In discussing the significance of the statistics we begin by following the Secretariat in trying to base our generalizations on an examination of the shares of all the deciles or quintiles of the distribution. Occasionally we shall refer to a single-statistic measure of inequality such as the Gini concentration ratio. These averages of inequality have their uses, but they are of more limited utility than averages in other contexts. The reason is that averages are most useful when all observations have

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1) For a thoughtful discussion of data needs in the context of developing countries, see Chapter 12 by Bell and Duloy in H. Chenery et al, op. cit.

equal interest for us; in income distribution analysis we are not indifferent to whether a change in the distribution occurred at the low end, in the middle or at the high end(1).

Trends. With respect to before-tax income, Mr. Shannon's survey suggests that there has been little change in the size distribution of before tax income in the past 20 or 25 years in most of the OECD countries. In some countries there has been a slight movement toward greater equality in the distribution of before-tax income and in others a slight movement in the opposite direction; over all there has not been much change.

The before-tax distribution is, however, of limited relevance for the kind of issues before this conference. The picture of trends in equality might be very different if data on changes in the social distribution of income had been available. The expansion of education and health services over the postwar period has been so extensive in many OECD countries that the social distribution could be expected to show an overall tendency toward greater equality. For the U.K., the one country for which the Secretariat paper presents trends for some kind of variant of a social income distribution, the equalizing influence of taxes and benefits over the period 1961-62 to 1972 shows through clearly(2).

Even if the before-tax income distribution is taken as the appropriate welfare indicator, the implication of its relative stability is that the low income groups have by and large shared proportionately in the rapid economic growth of the period since World War II. This is a point worth noting in view of the concern

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1) However, Champernowne points out that if interest is focussed on a particular aspect of inequality, such as inequality due to extreme poverty or to extreme wealth, it is possible to select a single-statistic measure that is sensitive to that aspect. The standard deviation of the logs of income, for example, is more sensitive to inequality associated with extreme poverty than the Gini coefficient. See D.G. Champernowne, "A Comparison of Measures of Inequality of Income Distribution," *Economic Journal*, December 1974.

2) However, it cannot be claimed that the Gini coefficients cited by the Secretariat in this connection show a trend toward less inequality. (The reference is to "final" income in Table 18.) On the other hand, the Gini coefficient for income before taxes and benefits ("original" income in Table 18) show an upward trend (though not an uninterrupted one). Whether the conflict between the growing inequality of original income in these data and approximate stability (or even slight decline) in inequality shown in other U.K. before-tax data for 1960 to 1972 (Table 15) is due to differences in the concepts of income, measures of inequality, coverage or other factors would require further study to ascertain.

expressed that the bottom income groups have been largely bypassed by growth, particularly in developing countries(1). The concentration on the fortunes of the lowest income groups rather than with movements in the overall distribution is, of course, consistent with a Rawlsian viewpoint.

A country by country examination of what has happened to the real per capita incomes of the low income groups is offered in Table 1. The time to time index of the real per capita income of a given percentile group in the population can be obtained from the formula

$$\frac{S_1}{S_0} \times \frac{\bar{Y}_1}{\bar{Y}_0}$$

where the first term represents the ratio of the group's share in the current period to its share in the base period and the second term represents the ratio of the nation's per capita income to the current period to its per capita income in the base period in constant prices(2). Columns 4 to 7 in Table 1 give the S_1/S_0 ratio (times 100) for 4 low income quantiles, column 8 the $\bar{Y}_1/\bar{Y}_0$ ratio (times 100), and the last four columns the index of real per capita income for the 4 quantiles (i.e., the products indicated in the formula). $\bar{Y}_1/\bar{Y}_0$ is calculated from U.N. data on population and GDP in constant prices.

Let us examine the data for the OECD countries first(3). With respect to the S_1/S_0 ratios, we find little change in the shares of the lower income groups for Canada, the Netherlands, Norway, the U.K., and the U.S.; an improvement in the low income shares for the Federal Republic of Germany, and Japan; and a worsening in the case of Finland and France. The results for Denmark and Sweden are different for each of the two distributions. When attention is turned to the change in the real income per capita of the low income groups, the lowest 40 per cent of the income distribution gains in every country although only marginally in France. For the lowest 5, 10, and 20 per cent groups also, gains in real per capita income predominate; the only exceptions are declines for all three lowest groups in Finland and France, for the lowest 5 per cent in Sweden, and for the lowest 10 per cent in Denmark.

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1) See, for example, J.H. Adler, "Development and Income Distribution," Finance and Development, September 1973; I. Adelman and C.T. Morris, "Who Benefits from Economic Development?", mimeo, World Bank, 1972.

2) See I. Kravis, "A World of Unequal Incomes," Annals of the American Academy of Political and Social Science, September 1973, p. 72.

3) The data in Table 1 were chosen mainly from two compilations of income distributions. The criteria of choice were: (1) they were national in scope and (2) were available for the same type of recipient unit for two periods at least 3 years apart. The sources are noted at the end of Table 1.

Among the developing countries the overall picture is less favourable to the low income groups. The cases in which the shares of the bottom groups have declined are somewhat more frequent and in several countries (India, Peru, and the Philippines) there has been a sharp deterioration in the real levels of living of the lowest income groups. The more usual situation, however, is that there have been improvements in the well being of the low income groups, sometimes substantial ones (Korea, Pakistan, Puerto Rico, and Taiwan).

The association between the change in real income per capita of the low income groups and the growth in per capita GDP can be examined more systematically through regression analysis. This may be done by regressing the index of real per capita income ($S_1/S_0 \times \bar{Y}_1/\bar{Y}_0$) for a low income group against the index of real per capita income for the rest of the population(1):

$$\log Y_L = \log \alpha + \beta \log Y_R + e$$

where Y_L refers to the index for the low income group and Y_R to the index for the rest of the population. Decision rules were set up to govern the choices among alternatives for countries with more than one entry in Table 1(2). The results (with the variables having been entered in natural logarithms) are as follows:

Lowest	No. of Countries	β	(t)	α	$\bar{r}^2$
5%	26	2.16	(3.11)	-5.72	.26
10%	27	1.69	(3.09)	-3.43	.25
20%	28	1.65	(3.99)	-3.20	.36
40%	28	1.26	(3.86)	-1.25	.34

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1) At first blush, one might choose the index of real per capita income for the whole economy as the independent variable. However, this would bias the results because the dependent variable would be part of the independent variable.

2) Where Table 1 contains more than one intertemporal comparison for a particular country, preference was given to the one that (1) referred to households (or consumer units) rather than some other type of recipient unit, (2) was based on identical original sources for initial and terminal year data, (3) provided data for all deciles, and (4) covered the longest period. Specifically, the following choices were made from the distributions in Table 1: Sweden-first entry; U.K.-first entry; U.S.-first entry; Brazil-second entry; Colombia first entry; India-first entry; Sri Lanka-first entry.

These results indicate that the growth in the real per capita incomes of the low income groups is not only significantly correlated with the rate of economic growth in general but also that the real per capita income of the low income groups have grown faster. These conclusions persist when other choices are made among alternatives in Table 1 where a country is represented by more than one entry(1). Whether other bodies of income distribution data—differing in countries and period covered will produce similar results remains to be seen(2).

It is not unlikely that the correlations would be stronger and the β coefficients larger were it possible to base the analysis on changes in what we have called the social income distribution. The β coefficients would be larger if the lower income groups benefited from the expansion of public education and socialized health care more, relative to their initial incomes, than the other groups.

In any case, a policy designed to help the low income groups must take account of the significant linkages between the fortunes of different income groups. Redistributive policies that slow the rate of growth can be expected to have feedback effects that are adverse to the real well being of some of the least favoured groups in society. In choosing among redistributive policies, therefore, those consistent with growth have much to recommend them even from the standpoint of the beneficiaries of redistribution.

Limits to equality? The foregoing observations were based on comparisons of intertemporal movements within countries. A comparative view of income distributions for different countries at a given time period may throw some light on a question raised earlier: Is there some limit to which equality can be pushed, in view of the possible adverse effects on incentives and the inevitability of income differences arising from variations in individual preferences and stage of life?

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1) Making the substitutions one at a time, the β coefficients are always greater than 1 and the t-ratios greater than 2.

2) The only case in which very different results emerged from the distributions we have been working with relates to the lowest 5%. In a regression employing a Netherlands distribution in Mr. Shannon's original paper (but not his revision) and a U.K. distribution relating to individuals (later replaced by one relating to households), the β coefficient for the lowest 5% was +1.05 with a t ratio of 1.4 and an $\bar{r}^2$ of .03. It would be plausible that growth in which other low income groups shared might by-pass the lowest 5%. Households in this group do not benefit from the employment-creating effects of a bouyant economy. Where there is widespread unemployment or under-employment, the provision of jobs that is often associated with economic growth is, as the experience of the U.S. during the 1930s clearly suggests, a strong income-equalizing force.

However, the prior question has been raised whether we are justified in trying to draw any inferences from comparisons of distributions in different countries for a given period of time. No, say some; there are too many important differences between the distributions of the various countries--differences in recipient unit, concept of income and coverage of income. One bit of evidence exists that suggests that despite these difficulties, meaningful comparisons can be made in the consistency of results of several independent efforts utilizing different assemblages of distributions to determine the cross sectional relationship between inequality and per capita income level(1): Income inequality first rises and then falls as we move from countries with low per capita incomes to those with high ones. Even though comparability for any pair of countries may be suspect, generalizations based on groups of countries may be more trustworthy.

Table 2 summarizes the data on income distributions for 28 countries by presenting shares for different quantile groups with more detail for the extremes(2). The distributions refer for the most part to before-tax income of the entire population.

The table has to be read in the light of all the qualifications abut the nature of such data so clearly set out in Mr. Shannon's income distribution paper. Once again we must expect that some of the country to country variation in the shares of the lower and upper income groups is due to statistical differences. The comparability of the distributions for the socialist countries with the others is diminished further by the fact that the socialist distributions refer to workers' incomes only (excluding incomes from self employment) and exclude perquisites of favoured groups. Also, the smaller importance of direct taxes in the socialist countries (and perhaps in the developing countries also) might make a comparison of after-tax distributions more appropriate. It would be better still to be able to compare social distributions.

However, even when all of these differences are taken into account, it seems clear that the figures support our earlier observation that there is a substantial variation in the degree of equality with which income is distributed, even among the relatively homogeneous OECD countries. The difference among the OECD countries can be said to be large in the light of the political, social and economic obstacles that would be involved in an effort to reduce income inequality say in France with a Gini coefficient of .52 to say that in the U.K. with a Gini coefficient of .40 (data of the 1960s in the Secretariat paper).

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1) See the summary by F. Paukert, "Income Distribution at Different Levels of Development: A Survey of Evidence," International Labor Review, August-September 1973.

2) Table 2 gives only the more recent of the paired distributions that are the basis of the data in Table 1.

A rough categorization of the distributions is presented in Table 3. The table includes averages for three sets of countries--LDCs, OECD countries and socialist countries. For the first two groups, "least equal" and "most equal" distributions, each based on several of the extreme distributions, are also presented. Taken at face value, the figures indicate that on the average inequality is greater among the LDCs than in the OECD countries, and greater in the OECD countries, than in the socialist countries. The differences between the least and most equal distributions are very large.

The conclusions about the relationships between the various groups of countries have to be qualified. Some LDCs have a high degree of equality (e.g., Korea) and some developed countries a high degree of inequality (e.g., France). The equality gap between the other countries and the socialist countries is probably exaggerated by the differences between the socialist distributions and the others alluded to earlier. If all these differences could be adjusted it is possible that we would find some non-socialist countries with about the same degree of equality as some of the socialist countries. Even as the figures stand, the Japanese distribution does not reveal a very different degree of equality from that of the socialist countries, and Professor Wiles, who has tried to make such comparisons, has concluded that Sweden is probably more equal than Bulgaria and the U.K. than the USSR(1).

If we are to find any countries in which equality has been pushed near or beyond the desirable limit, we shall therefore have to look among this group with relatively equal distributions - Japan, the U.K., Sweden and the socialist countries. Claims about the adverse consequences of diminishing the shares of the rich are continually made in some of these countries, notably in the U.K. and Sweden - as well as in many other countries. It is true that such arguments are often self serving and there is a natural tendency to set them aside. They are difficult to assess in any case.

The possibility that equality can go too far should not, however, be excluded. Indeed, the distributions of the socialist countries of the 1960s, shown in Table 2, may well have represented a situation in which there was too much equality at least in a utilitarian sense; that is, incentives were adversely affected to such an extent that the growth of the total output of the society was diminished. At least this is consistent with the dissatisfaction with which these countries themselves viewed the efficiency and growth associated with these income distributions and with the measures of reform they undertook--measures which among other things operated to increase incentives.

This is not to deny that in most of the OECD countries there is room for more equality. For example, the taxation of inheritances and gifts still permits intergenerational transfers of physical wealth that cannot be justified in terms of incentives and which are if anything counterproductive on this score. If it

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1) See his comment for this seminar.

is believed that the opportunity to provide for one's children is a necessary incentive, there ought to be much higher--near confiscatory--taxation of that part of each estate that was received by the deceased as a gift or inheritance, a proposal made a half century ago by the Italian economist, Rignano(1). It is doubtful also whether there is any social justification for allowing very wealthy individuals to escape with lighter proportionate tax burdens than those with lower incomes as happens in the U.S. and apparently in other countries too.

We do not know how large income differences have to be to provide incentives for ordinary members of the labour force, to encourage the development of talents requiring long years of training with uncertain outcomes (ballet dancers and other artists), or to call forth Schumpeterian innovators. This may vary from country to country. In a homogeneous cohesive small country, a sense of the common good and the rewards of social esteem may draw out people's best efforts with relatively little income differentiation, while in a country large in population and area where people live to a greater degree in separate geographical, occupational, religious and racial communities, larger income differences may be necessary to achieve the same result. Thus, Pryor found that the inequality in the distribution of labour income increased with the size of population for a sample of 19 western and 6 eastern countries, and ascribed this finding to the regional separation of labour markets in large countries (2). The technological aspirations of a country may make a difference too. A small country may be satisfied to have its industrial leadership be constituted by Schumpeterian imitators and to leave innovation to bigger countries. As between the world's two great powers, each of which is or should be concerned with both technological progress and equity in income distribution, the income distribution of the U.S. is vulnerable to the objection that a man can be rich (through inheritance) without any effort on his part, while the USSR may still be seeking technology from the West because a man cannot get rich in the Soviet Union no matter how hard he works.

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1) J.E. Meade has also offered some suggestions for principles of levying death duties and gift taxes in his Efficiency, Equality and the Ownership of Property (Cambridge, Mass.: Harvard University Press, 1965). His preferred principle is a progressive tax on the cumulative amount of gifts or bequests received by an individual over his life span. An incentive would thus be provided to a wealthy person "... to pass on his property in small parcels to persons who had up to date received little by way of gift or inheritance" (p. 57).

2) F.L. Pryor, "The Distribution of Nonagricultural Labor Incomes in Communist and Capitalist Nations," Slavic Review, September 1972.

Finally, it is worth observing, in view of the fact that the distinction has sometimes been overlooked in this conference, that the distribution of income and the distribution of life chances are not the same. A dissatisfaction with the latter does not necessarily betoken a dissatisfaction with the former. It is possible, for example, to hold that an income distribution in which the bottom quintile gets 10 per cent of the income and the top quintile 30 per cent is acceptable, but that public policy should try to offset the unfair way in which the inheritance of genes and of physical wealth predestine some individuals for the bottom quintile and others for the top one.

Obviously, the public policies called for will be different according to whether it is life chances alone that are to be made more equitable, whether it is the income distribution itself that is to be made more equal, or whether both are to be policy targets. If, for example, the purpose of educational expansion has been to increase equality in life chances, it is wrong or at least inadequate to cite the lack of change in the income distribution as evidence of the failure of the policy.

Conclusions

If, as seems likely, distributional issues will play a larger role in public policy, priority should be given in official statistical work in each country to the development of distributions of what we have called market and social income. This would pave the way for research (public and private) to obtain a better understanding of the conflicts and complementarities between growth and equality. The agenda for research should also include efforts to determine how much equality is optimal for a given country. This is obviously a difficult and, at least at the moment, impossible question to answer, but that is not a reason for walking away from it.

Table 1

Change in Real Per Capita Income of Low Income Groups

OECD countries	Recipient	Period	Terminal year share as % of initial year share for bottom 5%	10%	20%	40%	Per capita GDP of terminal year as % of inital year	Terminal real per capita income as % of initial year for bottom 5%	10%	20%	40%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Canada[1]	H	1961-65	100	95	98	101	121	121	115	119	122
Denmark[1]	I	1955-66	117	121	120	111	150	176	182	180	167
Denmark[1]	E	1962-68	NA	66	83	95	123	NA	81	102	117
Finland[1]	I	1952-62	50	50	59	75	146	73	73	86	110
France[1]	H	1956-62	66	71	66	82	126	83	89	83	103
Germany[1]	I	1955-64	112	124	115	114	151	169	187	174	172
Japan[2]	H	1964-72	NA	NA	119	112	196	NA	NA	233	220
Netherlands[1]	I	1952-62	100	100	95	100	146	146	146	139	146
Norway[1]	I	1957-63	100	91	100	108	119	119	108	119	128
Sweden[1]	I	1954-63	67	80	79	83	134	90	107	106	112
Sweden[2]	I	1967-71	NA	200	350	175	137	NA	274	480	244
U.K.[1]	H	1960-68	100	95	100	104	119	119	113	119	124
U.K.[2]	H	1957-72	NA	NA	105	99	134	NA	NA	141	123
U.S.[1]	H	1960-66	100	100	100	94	124	124	124	124	116
U.S.[2]	C	1964-71	NA	NA	114	105	118	NA	NA	135	124
Developing countries											
Brazil[1]	A	1960-70	NA	NA	57	94	136	NA	NA	78	128
Brazil[1]	A	1960-70	100	92	89	86	136	136	125	121	117
Colombia[1]	A	1962-70	58	60	59	63	117	68	70	69	74
Colombia[1]	A	1964-70	175	167	159	134	114	200	190	181	153
Costa Rica[1]	H	1961-71	83	81	90	107	137	114	111	123	147
El Salvador[1]	P	1965/7-69	100	100	103	121	102	102	102	105	123
India[1]	H	1953/7-60	33	33	50	70	111	37	37	56	78
India[1]	H	1960-67/8	200	180	120	94	104	208	187	125	98
India[1]	H	1953/7-67/8	67	60	60	66	114	76	68	68	75
Korea[1]	H	1968-71	147	118	115	112	129	190	152	144	145
Mexico[1]	H	1963-68	82	86	99	97	123	101	106	122	119
Pakistan[1]	H	1963/4-70/1	213	152	128	117	112	239	170	143	131
Peru[1]	A	1961-70/1	75	70	60	81	113	85	79	68	92
Puerto Rico[3]	F	1959-69	NA	70	105	121	188	NA	132	197	227
Philippines[1]	H	1956-65	50	57	83	93	108	54	62	90	100
Sri Lanka[1]	H	1953-63	56	79	87	94	108	60	85	93	102
Sri Lanka[1]	E	1963-69/70	240	200	160	131	122	293	244	195	160
Sri Lanka[1]	H	1953-69/70	133	158	138	124	131	174	207	181	162
Taiwan[1]	H	1953-64	240	273	289	215	157	377	429	454	338
Socialist countries											
Bulgaria[1]	W	1957-62	133	133	129	107	147	196	196	190	157
Czechoslovakia[1]	W	1959-64	132	111	109	102	111	147	123	121	113
Poland[1]	W	1956-64	120	105	104	101	149	179	156	155	150
Yugoslavia[1]	H	1963-68	91	92	96	97	125	114	115	120	121

1. Shail Jain, Size Distribution of Income; Compilation of Data, International Bank for Reconstruction and Development, November 1974.
2. Equality in the Distribution of Personal Income, (mimeo.), OECD, Paris 1974.
3. R.M. Maldonado, Economic Development and Income Distribution in Puerto Rico, Second Latin American Conference, International Association for Research in Income and Wealth, Brazil, 1974.

H - household
F - family
C - consumer unit
I - income recipient
A - economically active population
T - taxpayer
P - population
E - income earner
W - worker

Table 2

Recent Income Distributions

Country	Date	Recipient	Shares (%) of indicated percentile groups								
			-Lowest-						-Highest-		
			5	10	20	40	41-59	60-79	20	10	5
OECD countries											
Canada[1]	1965	H	.7	2.0	6.4	20.0	16.5	23.3	40.2	24.1	14.0
Denmark[1]	1966	I	.7	1.7	5.4	16.7	17.2	24.3	41.8	25.2	15.7
Denmark[2]	1963	E	NA	1.0	4.1	14.6	16.2	24.0	46.2	30.0	NA
Finland[1]	1962	I	.2	.5	2.4	11.1	15.4	24.2	49.3	32.5	21.0
France[1]	1962	H	.2	.5	1.9	9.5	14.0	22.8	53.7	36.8	25.0
Germany[1]	1964	I	.9	2.1	5.3	15.4	13.7	18.0	52.9	41.4	33.7
Japan[2]	1972	H	NA	NA	9.2	23.0	17.6	22.5	36.9	NA	NA
Netherlands[1]	1962	I	.4	1.3	4.0	14.0	16.0	21.6	48.4	33.0	23.6
Norway[1]	1963	I	.4	1.0	4.5	16.6	18.5	24.4	40.5	24.9	15.4
Sweden[1]	1963	H	.6	1.6	4.4	14.0	17.4	24.6	44.0	27.9	17.0
Sweden[2]	1971	P	NA	.4	1.4	8.9	[illegible]	27.5	47.6	29.5	18.0
U.K.[1]	1968	H	.8	2.1	5.6	18.8	18.2	23.8	39.2	24.0	15.0
U.K.[2]	1972	H	NA	NA	5.8	18.0	18.2	24.5	39.3	23.3	NA
U.S.[1]	1966	H	.4	1.0	4.0	15.0	17.0	24.0	44.0	29.0	19.0
U.S.[2]	1971	*	NA	NA	4.8	15.6	NA	23.3	44.6	NA	19.1
Less developed countries											
Brazil[1]	1970	[illegible]	NA	NA	2.1	[illegible]	NA	NA	NA	NA	NA
Brazil[1]	1970	[illegible]	.5	1.2	3.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Colombia[1]	1970	[illegible]	.7	1.5	3.5	9.4	12.1	19.1	59.4	44.0	[illegible]
Costa Rica[1]	1971	H	1.0	2.1	5.4	14.7	15.1	20.8	45.2	30.4	20.0
El Salvador[1]	1969	P	.4	1.0	3.6	12.7	13.8	21.5	52.0	23.5	20.0
India[1]	1960	H	.4	1.0	4.0	14.0	13.0	21.0	52.0	36.0	27.0
India[1]	1967/8	H	.5	1.8	4.8	13.1	12.9	20.8	53.2	36.5	25.0
Korea[1]	1971	H	2.2	4.5	9.9	24.0	17.2	21.6	37.2	23.5	14.7
Mexico[1]	1968	H	.7	1.5	3.8	10.2	9.2	14.8	65.8	52.2	41.6
Pakistan[1]	1970/1	H	1.7	3.5	8.3	20.4	16.2	21.9	41.5	27.1	17.7
Peru[1]	1970/1	A	.3	.7	1.5	6.5	12.0	21.5	60.0	45.2	33.7

Table 2 (cont.)

Philippines[1]	1965	H	.5	1.2	3.9	11.6	12.5	20.3	55.4	40.	27.6
Puerto Rico[3]	1969	I	NA	.3	1.7	8.9	NA	NA	NA	NA	NA
Sri Lanka[1]	1963	H	.5	1.5	4.5	13.7	13.8	20.2	52.3	36.8	27.0
Sri Lanka[1]	1969/70	H	1.2	3.0	7.2	18.0	16.1	21.0	44.9	29.3	19.0
Taiwan[1]	1964	H	1.2	3.0	7.8	20.4	39.5	23.0	40.1	26.3	18.0
Socialist countries											
Bulgaria[1]	1962	W	2.0	4.8	11.6	26.9	17.9	22.1	33.2	20.4	11.0
Czechoslovakia[1]	1964	W	2.5	5.2	12.0	27.6	19.0	22.4	31.0	17.2	9.7
Poland[1]	1964	W	1.8	4.2	9.8	23.4	18.1	22.5	36.0	22.0	13.0
Yugoslavia[1]	1968	H	1.0	2.3	6.5	18.5	17.0	23.0	41.5	25.2	15.0

For notes and sources see Table 1.

Table 3

Types of Income Distributions

Developed & developing countries

	Least equal	LDCs	OECD countries	Most equal	Socialist countries
Lowest					
5%	~0.5	0.9	0.5	2	1.8
10%	1	1.9	1.3	4	4.1
20%	3	4.7	4.6	9	10.0
40%	9	13.4	15.4	23	24.1
41-60%	10	15.1	16.6	17	18.0
61-80%	21	20.2	23.5	23	22.5
Highest					
20%	60	51.4	44.0	37	35.4
10%	41	32.2	29.1	23	21.2
5%	33	26.4	19.8	15	12.2

Source: Table 2.

THE DISTRIBUTION OF EDUCATIONAL OPPORTUNITY

LA DISTRIBUTION DES CHANCES D'ACCES A L'EDUCATION

Éducation et égalité

par

Jean-Claude Eicher et Alain Mingat

Si le droit à l'éducation a été réclamé si vigoureusement depuis longtemps, c'est qu'il apparaissait à beaucoup que l'éducation est l'instrument privilégié de la promotion politique et sociale.

Mais les résistances à la démocratisation ont été vives même lorsqu'elles n'étaient ~~pas admises~~ ouvertement. L'histoire de la France depuis le début du XIX è siècle est, de ce point de vue, une succession de phases d'extension de l'enseignement public ouvert à tous et de phases de stabilisation et de différenciation entre *"l'école des notables"* et *"l'école du peuple"*.

Par ailleurs, l'étendue de la promotion induite par l'éducation semble également varier à travers le temps. Elle est d'ailleurs difficile à apprécier.

Dans ce rapport, nous nous efforcerons donc de faire deux choses. D'une part, de présenter toutes les données chiffrées permettant de faire le point sur la situation actuelle en France, d'autre part et peut être surtout, de mener une réflexion théorique et méthodologique sur la façon optimale d'aborder ces problèmes et d'organiser la collecte des renseignements.

Ce second type de développements nous paraît indispensable, parce que les indices généralement utilisés nous semblent ou biaisés, ou tout à fait inadaptés à l'objectif poursuivi.

Nous commencerons par nous demander quelle est l'étendue réelle des inégalités devant l'éducation et pour cela, nous essaierons de construire un modèle permettant de distinguer les différentes causes d'inégalité et d'étudier leur interaction. Ensuite, nous nous demanderons dans quelle mesure la formation acquise est un facteur de promotion sociale et donc d'égalisation des conditions.

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1. LES INEGALITES DEVANT L'EDUCATION

Dans les sociétés industrielles de type capitaliste, l'observation superficielle semble révéler de profondes inégalités entre individus devant l'éducation. Par exemple, on dénombre peu de fils d'ouvriers et beaucoup d'enfants de cadres supérieurs dans l'enseignement supérieur. Apparemment, ce phénomène est au moins aussi net en France que dans les pays comparables.

Pourtant, ces sociétés ont mis sur pied, dès le XIXè siècle, un système éducatif ouvert à tous, alors que sous l'ancien régime, seuls les enfants des classes privilégiées pouvaient bénéficier des avantages de la culture.

En fait, le développement de l'enseignement auquel on a pu assister depuis plus d'un siècle est la résultante de l'action de deux facteurs entièrement étrangers l'un à l'autre et, dans une certaine mesure, antagonistes. D'une part, les besoins de l'industrie en individus pouvant comprendre le fonctionnement des machines afin d'assurer leur bon fonctionnement, et éventuellement, les améliorer, se sont développés avec la révolution industrielle et surtout à partir du dernier quart du XIXè siècle. Ce besoin a donné naissance à des établissements fournissant un enseignement technique et professionnel. D'autre part, l'instauration d'un système politique de démocratie indirecte demandait des individus instruits des réalités sociales et capables de comprendre les options qui leur étaient proposées, des citoyens sachant exercer librement et lucidement leur droit de vote.

L'action de ces deux facteurs est très visible dans le cas de la France. La première a donné naissance d'abord à des écoles d'ingénieurs, puis à des écoles professionnelles de niveau inférieur. Le second a amené le passage d'un système dualiste, celui de l'Ecole des notables et de l'Ecole du Peuple *"dont la légitimité ne se discutait pas"* (1), à un système de scolarité obligatoire laïc, gratuit, instauré par les réformes de Jules FERRY de 1881.

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(1) cf A. PROST : *L'Enseignement en France 1800-1967* - A. COLIN - Coll. U. 1968. Nous renvoyons volontiers pour plus de détails à cet excellent ouvrage qui montre bien la lutte entre les deux tendances que nous avons mentionnées.

On voit donc que le premier facteur tend à créer des inégalités en instaurant une ségrégation entre filières *"nobles"* et longues et filières professionnelles, généralement plus courtes et que le second vise au contraire à instaurer l'égalité face à l'éducation.

Il est utile de se demander où en est aujourd'hui la société française, lequel de ces facteurs y est dominant. Mais nous pensons que les instruments habituels d'observation, essentiellement, les taux différentiels de scolarisation selon les groupes ne peuvent expliquer de façon satisfaisante la réalité observée. Il y a à cela deux raisons, d'une part les données statistiques disponibles sont imprécises et peu homogènes à travers le temps si bien qu'elles permettent mal de préciser le sens de l'évolution, d'autre part et surtout, les progrès récents des recherches sociologiques, psychologiques et biologiques ont montré que les déterminants des inégalités devant l'éducation sont si complexes qu'il faut reprendre le problème à la base et se livrer à une analyse systématique avant de pouvoir présenter des chiffres significatifs. Nous utiliserons donc ici un détour qui pourra paraître au départ, hors sujet, puisque notre propos sera essentiellement de construire un modèle global cohérent agrégeant les différents apports dans un système de propositions conditionnelles dont la réalisation simultanée entraînerait l'accès effectif et la réussite à un niveau quelconque d'éducation.

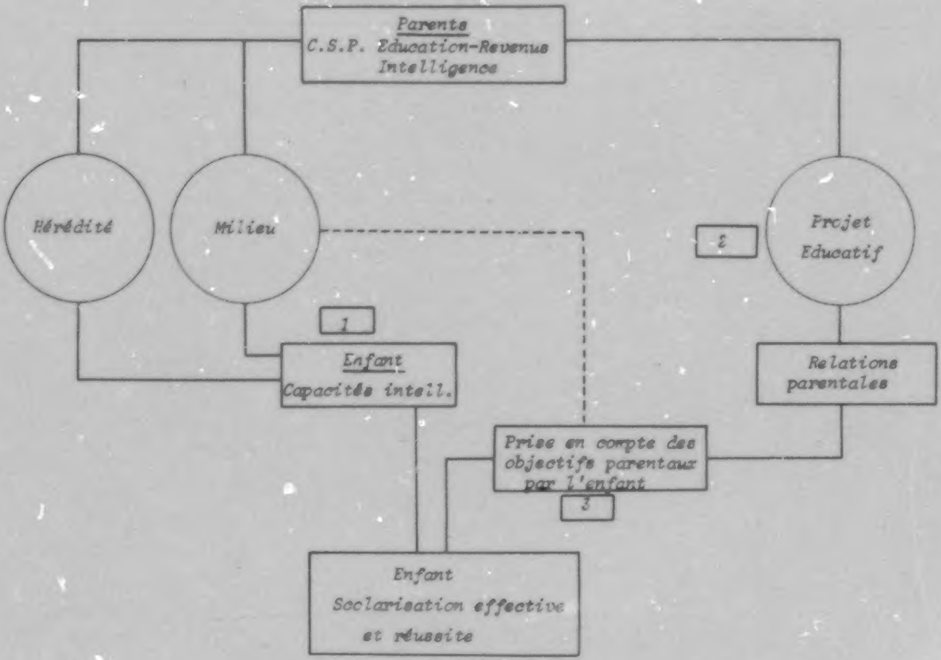
L'analyse sera conduite à partir d'une approche individuelle de la demande d'éducation et l'explication des inégalités constatées au plan de la société sera menée principalement en prenant en compte les différences des conditions objectives de chacun des individus devant l'éducation. Nous examinerons, dans le cours du texte, les apports des différentes sciences sociales à l'intérieur du corps de propositions conditionnelles suivantes :

1. Pour qu'un enfant puisse suivre un cycle d'enseignement déterminé, il faut qu'il dispose d'un certain volume minimal de capacités intellectuelles.

2. Pour qu'un enfant entre dans un cycle d'enseignement déterminé et qu'il y réussisse, il faut que les parents motivent cet enfant dans ce sens. Il est évident que cette volonté parentale peut être soit explicite, soit implicite, et trouver son origine au niveau des chances objectives de réussite, de conditionnements sociaux, ou de contraintes financières. Outre ces facteurs de type socio-économique, il convient de noter que des difficultés familiales entre les parents peuvent conduire à un *"abandon affectif"* de l'enfant et à l'absence de projets éducatifs et de motivations envers lui.

3. Pour qu'un enfant réussisse dans un cycle d'enseignement déterminé, il faut que l'enfant fasse sienne la volonté de ses parents. De mauvaises relations

entre les parents et l'enfant conduisent en effet souvent à l'échec scolaire. Celui-ci est de fait considéré par l'enfant comme un moyen privilégié pour s'opposer efficacement à ses parents.


Parents
C.S.P. Education-Revenus
Intelligence
Hérédité
Milieu
Projet Educatif
2
1
Enfant
Capacités intell.
Relations parentales
Prise en compte des objectifs parentaux par l'enfant
3
Enfant
Scolarisation effective et réussite

Le texte proposé examinera les différents points de ce système de propositions conditionnelles et cherchera à dégager quelles ont été et quelles sont vraisemblablement encore les raisons de la situation d'inégale scolarisation que nous observons.

Nous nous attacherons en premier lieu à l'examen de la première proposition. Nous chercherons, en particulier, à répondre à la question suivante : le système éducatif est-il organisé ou fonctionne-t-il, en sélectionnant les plus *"doués"* pour les niveaux les plus élevés ? La réponse à cette question prend la forme d'un jugement du caractère méritocratique de notre enseignement, il faut par conséquent, justifier le pourquoi de cette norme.

La méritocratie est considérée comme nécessaire à l'efficacité optimale du système éducatif et de la société libérale dans laquelle il se situe. En effet, en situation de rareté, il faut faire le meilleur usage des ressources disponibles si bien qu'il est préférable d'éduquer les plus aptes et ensuite de leur donner les emplois qui demandent le plus de compétences. Dans ce cadre, le système éducatif remplit deux rôles complémentaires. D'une part, il transmet les connaissances, d'autre part, il filtre les individus en fonction de leurs capacités : les moins doués sont rapidement barrés par le niveau de leurs compétences, alors que les plus doués sont à même de gravir jusqu'en haut les différents échelons.

Ce critère, fondé sur une société *"ouverte"* est essentiellement une idée libérale, alliant la liberté de l'individu avec l'efficacité économique de la société ; cependant, au plan de la justice, il n'y a pas d'évidence en faveur de ce critère. En effet, à sa naissance, un enfant est gratifié d'un certain nombre de caractéristiques physiques, intellectuelles et sociales. Il devient alors clair que le choix de l'intelligence comme critère d'accès à une fonction quelconque est aussi arbitraire que l'appartenance sociale, le sexe, ou la couleur des yeux.

De plus, si on pense que l'intelligence est bien le critère pertinent quant à l'accès à l'éducation, il conviendrait, pour que ce choix conserve son sens au plan de la société, que l'éducation soit le critère d'accès aux professions. En effet, à quoi servirait ce choix dicté par l'efficacité s'il n'y a pas une relation forte entre l'éducation et l'emploi. Or, dans nos sociétés, cette relation n'est pas établie. Ainsi C. JENCKS[1] a montré que la réussite sociale n'est que très modérément liée à l'éducation. De façon convergente, les tests de la théorie du capital humain ne nous rendent pas très confiants, quant à l'étroitesse de la liaison entre l'éducation et le revenu individuel. Nous reviendrons dans la deuxième partie de ce texte à l'analyse de cette question.

Ce premier aspect que nous venons d'évoquer, du système éducatif est extrêmement finaliste par rapport à l'organisation productive de la société. En fait, un consensus assez large dans la population assigne à l'enseignement également un rôle de développement de l'individu considéré comme un humain et non seulement comme un producteur potentiel dans un système donné. Il s'agit alors, pour l'enseignement, de favoriser la pleine expression de toutes les potentialités de l'enfant. Il faut noter ici que l'idée qui régit l'organisation scolaire est, en France, principalement productiviste. Ainsi notre enseignement est fondé sur la notion d'une norme minimale qui s'exprimerait de la façon suivante : les enfants sont inégalement doués, par conséquent, ce n'est qu'en abaissant dangereusement le *"niveau"* qu'on pourrait permettre à tous de progresser au même rythme. Cette norme minimale, qui ne pénalise pas trop les *"doués"* par excès de lenteur, conduit à éliminer les enfants qui ne se coulent pas dans le moule pré-établi. Ce système institutionalise le redoublement et *"centrifuge"* ceux qui ne s'ajustent pas au modèle idéal, centrifugation autour d'une filirère noble que seule l'élite est invitée à suivre.

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[1] C. JENCKS - *A reassessment of the effect of family and schooling in America.* Basic Books - New York - 1972.

Cette conception du système éducatif, qui était celle de la France, n'est pas la seule possible. Plutôt que de chercher à ce que les enfants se conforment à un modèle normatif, on peut avoir comme ambition de donner à chacun la possibilité de développer ses dons, dans et par l'enseignement qu'il reçoit. Dans cette conception de l'éducation, l'échec n'a pas de place ; les problèmes de l'enfant sont alors perçus comme des erreurs d'éducation ou d'orientation.

Notons enfin, pour conclure cette présentation, que ces deux conceptions de l'éducation d'une part sélection, d'autre part promotion individuelle, ne s'opposent pas au plan de la diversité des scolarisations. En effet, dans les deux cas les scolarisations effectives finales se hiérarchiseraient en fonction des aptitudes personnelles. C'est pourquoi nous retiendrons comme l'un des critères de jugement du système éducatif d'un pays libéral tel que la France, son aptitude à sélectionner les enfants les plus doués.

I. EXAMEN DU SYSTEME FRANCAIS PAR RAPPORT AU CRITERE MERITOCRATIQUE

I.1. Les aptitudes naturelles

Le premier problème à résoudre avant de s'engager dans cette voie est de définir ce que sont les aptitudes individuelles. Ce problème se situe au centre d'un débat qui a passionné plusieurs générations de philosophes et de psychologues, débat qui n'est d'ailleurs pas encore éteint dans la mesure où aucune définition raisonnable n'a explicité le concept de l'intelligence. A partir de ce constat d'échec, les psychologues, notamment GALTON et par la suite, avec plus de bonheur BINET, se sont engagés dans la voie qui consiste à substituer la réussite à des tests à la mesure quantitative d'un concept inexistant. Cette procédure présente l'avantage de l'existence, mais présente aussi des inconvénients qu'il n'est pas inutile de rappeler brièvement. Ceux-ci se rencontrent au niveau même de la procédure utilisée, ainsi qu'au niveau de la signification des résultats qui en sont issus.

En premier lieu, il faut noter que l'intelligence n'est pas une donnée factuelle directement observable comme la taille ou la couleur des yeux, mais qu'elle est bien plus une potentialité vraisemblablement fondée sur l'organisation cérébrale interne. On ne peut donc pas appréhender l'intelligence en elle-même, on peut seulement observer son action à travers des réalisations humaines. Les généticiens ont l'habitude d'opposer le génotype qui est la potentialité avec le phénotype qui en est l'expression physique. Ce dernier est mis en évidence dans des manifestations qui sont caractérisées dans le temps et dans l'espace. Il est donc, par essence, sujet à des variations liées aux particularités des conditions de l'expérience. L'aptitude d'un individu à la course peut très bien être réelle, mais cependant pour que nous en soyons convaincus, nous souhaitons le voir courir, et qui plus est, nous souhaitons utiliser un chronomètre. Il est clair alors que le temps mis pour parcourir une certaine distance est certes fonction des qualités de coureur, mais aussi de l'entraînement qu'il a subi et des conditions conjoncturelles particulières (indigestion du coureur, vent favorable ou défavorable).

En ce qui concerne l'intelligence, les psychologues ont mis au point toute une batterie de tests, mais malgré leur grande ingéniosité, ils n'échappent pas à la critique suivant laquelle la quantification s'attache au phénotype et non directement au génotype. Pour que les notes obtenues à des tests puissent donner des indications convenables sur les qualités innées de l'individu, il faudrait qu'on puisse faire l'hypothèse d'une transformation identique du génotype pour tous les individus. La mesure sera donc valide si tous les individus ont eu des opportunités de développement semblables. Il est clair que si on fait courir ensemble deux adolescents, que l'un est très entraîné et que l'autre relève d'une longue maladie, alors cette épreuve ne nous renseignera pas sur leurs aptitudes réelles respectives et ne nous sera d'aucune utilité pour prédire leurs performances futures.

Pour l'intelligence, il en est de même, et l'utilisation d'un test est conditionné par l'homogénéité du milieu de vie de la population testée et de la population de référence qui a servi à la construction du test et à la définition des épreuves. Ainsi, on ne peut pas conclure que des enfants sont des imbéciles s'ils ne connaissent pas le nom des mois d'un calendrier qui n'appartient pas à leur culture. Et pourtant, les tests culturels sont vraisemblablement indispensables car l'intelligence a certainement comme composante la compréhension du milieu de vie. On peut alors se demander jusqu'à quel *"seuil de discordance"* on peut accepter l'hypothèse d'homogénéité. En effet, il est clair que le même test ne pourra être utilisé pour une population urbaine d'un pays développé et pour une population indienne de l'Amazonie. Cependant, il est clair aussi que si on pousse très loin la volonté d'homogénéïté, on arrivera à la tautologie entre l'individu X et lui-même. Entre ces deux extrêmes, la comparaison entre des enfants issus de classes sociales différentes est-elle possible ? Le Q.I. est-il comme le prétendent certains, un habillage pseudo-scientifique, signe distinctif secret de l'appartenance sociale des enfants ? La réponse à ces questions ne peut pas être faite a priori ; la seule possibilité consiste à observer ex-post la part de la variance de l'intelligence mesurée par le Q.I. qui, dans une population normale, est due à des différences dans les conditions de milieu. Si cette part est forte, cela indique l'existence d'un biais culturel important, si cette part est faible, cela indiquerait au contraire que les mesures ne sont pas trop sensibles à l'environnement.

Un point cependant mérite d'être élucidé plus précisément à ce niveau. Il s'agit de savoir ce qu'ont mesuré en définitive les tests traditionnels. On ne peut pas en effet être certain d'avoir mesuré l'intelligence dans sa totalité.

Les tests Q.I. classiques sont fondés sur l'existence supposée d'un facteur général g et d'aptitudes spécialisées qui lui sont périphériques. Pour expliciter ce point de façon sensible, reprenons l'analogie avec la capacité physique. Si nous voulons estimer la capacité athlétique générale d'un individu, nous lui ferons subir un certain nombre d'épreuves diverses - courses, lancers, sauts ...., - mettant en jeu des fonctions musculaires variées. Cette variété, outre les problèmes de transitivité des mesures qu'elle peut entraîner, conduit à des épreuves non indépendantes, en ce sens qu'elles peuvent mettre en jeu plusieurs fois les mêmes fonctions. Ainsi, la course de vitesse et le saut en longueur sont deux épreuves distinctes, mais ont une partie commune puisque la performance d'un individu au saut est d'autant meilleure que la vitesse sur la planche d'appel est grande. Il s'ensuit que la réussite à une épreuve peut être plus ou moins prévue par le résultat à une autre.

SPEARMAN, à partir d'observations de ce type concernant l'intelligence - corrélations de l'ordre de 0.50 entre différentes épreuves d'un même test - a fait l'hypothèse de l'existence d'un facteur commun à toutes les épreuves, facteur commun qui serait partiellement mesuré par chacune d'entre elles, et qu'il a appelé *"intelligence générale"*. De façon statistique, ce facteur g est le noyau d'une analyse factorielle effectuée à partir des résultats partiels. A côté de cette intelligence générale, se trouvent des aptitudes spécialisées qui intéressent des types particuliers de raisonnement ou de processus mentaux : aptitude spatiale, numérique, mémoire...

Cependant, tous les psychologues n'adhèrent pas à cette conception hiérarchique de l'intelligence. Ils considèrent que cette façon d'aborder le problème est trop simpliste et que le facteur g est essentiellement le produit d'une illusion statistique dont l'origine se trouve dans la procédure d'échantillonnage. J.P. GUILFORD (1) s'est fait le chef de file de cette école et il a lui-même dénombré cent vingt facteurs indépendants intervenant dans le comportement individuel, un nombre relativement faible de ceux-ci étant pris en compte dans les tests standardisés Q.I. classiques.

Nous sommes alors confrontés au problème de savoir s'il faut rejeter les tests traditionnels, ou bien au contraire, s'il faut les accepter dans leur forme actuelle. En fait, le point important n'est pas d'identifier le Q.I. avec l'intelligence, mais de trouver un indicateur qui prenne en considération les qualités requises par la scolarisation, même si ces qualités n'épuisent pas la totalité des compétences humaines. Les pionniers de la psychométrie moderne, BINET et SIMON, n'avaient d'ailleurs pas l'ambition de mesurer l'intelligence, mais seulement de déceler les élèves pour lesquels on pouvait pronostiquer des difficultés dans le système éducatif. C'est pourquoi, nous éviterons d'assimiler intelligence avec quotient intellectuel, mais nous avons acquis la conviction que le Q.I. mesure plus ou moins parfaitement les capacités requises par notre enseignement. - manipulation de mots et de chiffres, raisonnement logique ...- si bien que nous l'utiliserons quant à l'analyse des inégalités devant le système scolaire.

Une question doit maintenant retenir notre attention de façon plus précise. Si nous observons simultanément pour plusieurs individus des différences quant au Q.I. et quant à la réussite scolaire, il faut s'interroger sur le sens de la relation possible. En effet, est-ce parce que ces enfants ont des aptitudes cognitives différentes qu'ils réussissent différemment, ou bien est-ce parce qu'ils ont acquis des connaissances différentes qu'on observe des performances Q.I. variées ? En d'autres termes, dans une population, la variance du Q.I. s'explique-t-elle par des différences génétiques et/ou environnementales, et dans le cas de la double détermination, quelles sont les proportions imputables à chacune de ces deux causes ?

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(1) GUILFORD (J.P.) - *The nature of human intelligence* - Mc Graw Hill - 1971 - Londres.

I.2. Le Q.I. - L'inné et l'acquis

Si nous reprenons la distinction entre le génotype et le phénotype, il convient de noter que le génotype est entièrement constitué dès la fécondation de l'ovule maternel et que la combinaison génétique est alors déterminée de façon immuable. Cependant, il est vraisemblable que cette potentialité se réalisera plus ou moins complètement suivant le milieu dans lequel se développera l'enfant.

La question reste alors de savoir si le programme génétique initial est à même de se dérouler de façon immuable quelles que soient les conditions culturelles, affectives ou physiques de la croissance, ou bien si le fond biologique fixe seulement un cadre sans consistence, avec comme corollaire que la vie sociale d'un individu est à même d'expliquer le Q.I. observé. Cette deuxième position s'appuie sur l'idée que le cerveau est très largement sous-utilisé par l'activité humaine, si bien qu'il y a une relativement grande égalité de tous les nouveaux nés quant à l'intelligence.

Pour trancher entre ces deux visions extrêmes, ou pour adopter une position plus nuancée, il nous faut apporter des évidences empiriques, car seul le recours au fait peut nous éclairer en cette matière si chargée d'affectivité. Dans une première étape, nous examinerons les résultats des expérimentations sur des animaux pour nous attacher ensuite à des estimations concernant notre espèce et nos sociétés.

I.2.1. Recherches portant sur des animaux

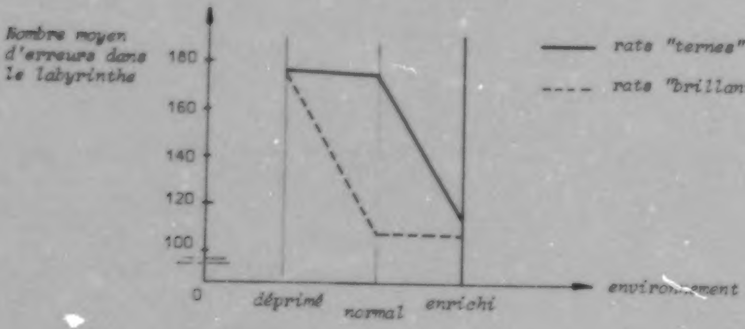
Les animaux présentent en effet par rapport à l'homme de nombreux avantages au plan de l'expérimentation. Ainsi, il est possible d'isoler l'effet d'une variable en contrôlant les autres paramètres pouvant agir sur le phénomène étudié. Il est relativement aisé de maintenir constantes les conditions générales de l'environnement de groupes d'animaux différant seulement par leur hérédité, ou réciproquement d'observer l'effet différentiel de l'environnement sur des animaux possédant le même potentiel génétique. De plus, on peut utiliser des espèces dont la durée de vie est courte, de sorte qu'il est facile d'expérimenter sur plusieurs générations successives pendant une période de temps restreinte.

Les animaux constituent donc une matière extrêmement riche comme support de la recherche biogénétique. Cependant, deux limitations essentielles réduisent la portée de ces travaux : tout d'abord, ce qui vaut pour les petits mammifères rongeurs, ne vaut pas nécessairement pour l'homme, et ceci surtout quant à l'intelligence, car les capacités cognitives de ces animaux sont extrêmement rudimentaires face à la complexité des fonctions cérébrales et mentales humaines. La seconde limitation tient au fait qu'on ne peut pas établir de relations de similitude entre les conditions différentielles de l'environnement animal et humain. Par conséquent, il faudra examiner avec prudence ces expérimentations, sachant qu'elles nous fourniront essentiellement des informations qualitatives.

Ces études nous indiquent qu'il existe un puissant déterminisme génétique, mais aussi que les conditions de développement sont capitales pour la constitution des capacités cognitives. La conclusion de ces expérimentations est le rejet des hypothèses extrémistes et la très vraisemblable justesse de la thèse de la double détermination. Cependant, il semble qu'il ne soit pas licite de penser que la relation performance observée - environnement - soit aussi simple qu'il peut y paraître. Ainsi l'étude de COOPER et ZUBECK (1) est utile pour relativiser les résultats établis aussi bien pour les populations animales qu'humaines.

Le point important est que les estimations sont essentiellement fonction de la nature du milieu. En effet, ce qui est vrai pour les variations d'environnement à l'intérieur d'une certaine plage ne l'est plus nécessairement pour une autre. Le graphique ci-après, tiré de COOPER et ZUBECK explicite ce phénomène.

Dans un environnement normal, une séparation *"génétique"* s'opère entre les rats ternes et les rats doués, alors que la différentiation devient impossible dans un milieu soit très enrichi, soit très déprimé.



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(1) COOPER (R) et ZUBECK (J) - *Effects of enriched and restricted early environment on the learning ability of bright and dull rats* - Canadian Journal of Psychology - n° 12 - 1958.

I.2.2. Estimations dans les sociétés humaines

Les expériences animales nous enseignent que les différences interindividuelles en matière d'aptitudes cognitives s'expliquent vraisemblablement par des différences dans les potentiels génétiques et dans les conditions générales du développement intellectuel. Il est important de noter que cette question de l'inné et de l'acquis n'a pas de sens au plan individuel, mais concerne seulement l'origine des différences de performances constatées dans une population. Si on emprunte un exemple à la botanique, on peut montrer le non-sens de cette question au plan individuel.

Dans la culture d'un petit pois, il est clair que la récolte est d'une part totalement imputable à la graine, mais aussi d'autre part, totalement imputable à la terre et à l'arrosage. Vouloir séparer ces deux composantes, c'est supposer qu'une graine peut pousser sur la pierre, ou bien donner quelque crédit à la thèse de la génération spontanée. Pour que la question prenne un sens, il convient d'avoir une vision marginale du problème. Il faut se demander si un peu plus d'arrosage est susceptible d'améliorer la qualité du produit, ou si deux graines différentes, cultivées dans les mêmes conditions peuvent conduire à des récoltes différenciées. Par conséquent, nous abandonnerons toute analyse au plan individuel pour nous attacher seulement à rechercher l'origine probable des différences interpersonnelles en matière de Q.I.

La décomposition de la variance des résultats aux tests classiques (STANFORD-BINET, WELCHLER-BELLEVUE, TERMAN-MERRILL...), à l'aide des méthodes statistiques habituelles nous apportera un éclairage sur ce problème. Cependant, outre certaines hypothèses propres aux modèles utilisés, il convient de noter que les estimations ne sont valides que pour les populations sur lesquelles les mesures ont été effectuées. Ainsi les résultats obtenus pour une population d'un pays industrialisé dans la seconde moitié du XXè siècle ne seront pas applicables pour celle d'un pays en voie de développement, ou pour celle d'un pays occidental à une époque différente de l'histoire.

Les chiffres cités ci-après n'auront donc valeur que pour les pays développés de l'Europe de l'Ouest ou de l'Amérique du Nord dans la seconde moitié du XX è siècle.

Dans ces populations, outre les cas pathologiques, la distribution de l'intelligence phénotypique est, par construction, approximativement Normale de

Variance V. Le problème est de partitionner cette variance en plusieurs composantes. Ces composantes s'ajoutent pour former la variance totale, ce qui ne veut pas dire que l'environnement et l'hérédité se composent additivement, mais seulement que la variance due à l'environnement et celle due à l'hérédité forment la variance totale dans la population.

$$V = V_h + V_e + 2\ \mathrm{cov}_{he} + V_\varepsilon$$

. V = variance phénotypique dans la population. Elle est conventionnellement fixée à 225 (écart-type 15) au stade de la construction des tests.

.V_h = variance due à l'hérédité. Des modèles plus complexes tel celui de C. BURT (1) proposent une décomposition plus fine, faisant apparaître quatre termes. En premier lieu, l'effet génétique additif qui indique que les enfants partagent le potentiel génétique (exprimé ou non) de leurs parents. En second lieu, nous trouvons l'effet de dominance qui prend en compte les proportions relatives des gènes dominants et récessifs; en troisième lieu, BURT introduit le phénomène épistasique qui intervient lorsqu'il y a interaction entre gènes non directement couplés. Ce terme se comprend comme un correctif apporté au modèle additif simple. Le dernier terme qui concourt à l'explication de la variance d'origine héréditaire est en fait issu d'un phénomène sociologique intervenu à la génération précédente. Il s'agit des particularités des procédures de mariage dans nos sociétés. En effet, les mariages ont tendance à se faire en fonction d'une certaine ressemblance des époux. On observe une corrélation relativement forte entre le Q.I. des parents, si bien que la conséquence en est une augmentation de la variance globale dans la population par rapport à une situation de mariages aléatoires quant à ce caractère.

.V_e = La variance due à l'environnement constitue traditionnellement un terme résiduel, après qu'on ait séparé la composante génétique et le terme d'erreur. Cependant, il serait possible de la fractionner de façon plus fine en considérant d'une part l'environnement en lui-même et d'autre part, l'effet des relations entre la qualité du milieu et les caractéristiques héréditaires.

.cov_{he} = covariance entre l'hérédité et l'environnement. La variance globale de Q.I. se trouve augmentée si les enfants génétiquement doués sont de plus favorisés dans leur développement intellectuel, et réciproquement, pour les enfants moins doués. Cette covariance est issue du caractère plus ou moins méritocratique de l'organisation de nos sociétés. En effet, si les plus doués font en moyenne plus d'études et ont en moyenne de meilleurs emplois en termes de rémunération, ils sont à même de fournir à leurs enfants, génétiquement favorisés, un environnement qui stimulera leur développement intellectuel. De plus, si des enfants ont des *"dispositions particulières"*, ils seront plus aptes à se créer, eux-mêmes, un milieu favorable et leurs parents seront sans doute tentés de leur fournir des moyens dans ce sens.

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(1) BURT (C) - *The inheritance of mental ability* - American Psychologist - n° 13-1958.

. V_ε = Terme d'erreur. Il est inévitable quelles que soient les précautions prises. Une procédure de test-retest à intervalle de temps réduit permet d'estimer une valeur comprise entre 5 et 10 % pour les tests confirmés.

Cette décomposition conduit à la définition de l'héritabilité. Le coefficient de détermination génétique est égal au rapport de la variance expliquée par des facteurs héréditaires et de la variance totale, terme d'erreur déduit.

$$h^2 = \frac{Vh}{V - V_\varepsilon}$$

Il nous faut maintenant estimer la valeur de ce coefficient en se rappelant que l'usage de cette évaluation devra se limiter à une société du type de celle dans laquelle les tests ont été effectués.

Dans les expérimentations animales, il était relativement aisé de contrôler certaines variables et d'appliquer le raisonnement ceteris paribus ; dans les sociétés humaines, nous devrons nous contenter d'approximations tirées de situations particulières danslesquelles les phénomènes de corrélations parasites ne sont pas trop graves. Par conséquent, la prudence conduit à ne pas se contenter des résultats d'une seule recherche ou d'un seul type d'expérimentation car la taille réduite des échantillons et les conditions souvent très particulières de ces études, constituent une limitation importante. C'est donc plutôt de la convergence des résultats qu'il convient de se préoccuper, en ayant soin de retenir une forme de variable aléatoire caractérisée par une valeur moyenne à l'intérieur d'un intervalle de confiance.

Différentes techniques empiriques ont été utilisées pour estimer la valeur du coefficient h^2. Nous trouvons tout d'abord des études familiales qui comparent l'intelligence mesurée de parents, enfants et collatéraux, puis des études portant sur des jumeaux et enfin sur des enfants adoptés par un foyer ou vivant en orphelinat. Dans les études de jumeaux en particulier, deux types de mesures ont été effectués suivant que les enfants ont été élevés ensemble ou de façon séparée.

Nous reprendrons ici seulement les résultats essentiels de ces recherches, en indiquant qu'il y a lieu de penser qu'il s'agit parfois d'estimations quelque peu excessives dans la mesure où le mauvais contrôle de certaines variables a pour effet de diminuer le rôle de l'environnement. Ainsi, pour les études d'adoption, il est vraisemblable que les milieux adoptants ne sont pas aussi diversifiés que l'ensemble de la population. De plus, quelle que soit la précocité de l'adoption, celle-ci intervient dans le meilleur des cas neuf mois après la conception, et souvent bien davantage, si bien que l'enfant a pu subir l'influence du milieu de sa famille biologique. Si on ajoute les problèmes liés à la nature nécessairement particulière des relations existant entre l'enfant adopté et ses parents adoptifs, on en arrive à la nécessité d'une précaution extrême en cette matière. En ce qui concerne les jumeaux monozygotes élevés à part, il n'est pas non plus clairement établi qu'il n'y ait pas une certaine similitude des deux milieux dans lesquels se sont développés les enfants. Une analyse très détaillée de C. BURT portant sur cinquante trois paires de jumeaux MZ séparés avant l'âge de six mois indique néanmoins une variété très grande des foyers, si bien qu'il ne faut peut être pas donner un crédit excessif à la critique précédente. Quoi qu'il en soit, on peut considérer que les estimations classiques fournissent un majorant de l'effet de l'hérédité.

La grande majorité des estimations du coefficient de détermination génétique se trouve à l'intérieur d'une plage comprise entre 0,60 et 0,85. Le point important n'est pas le choix d'une valeur sur cet intervalle, encore qu'on puisse penser que la zone de la borne inférieure est plus probable que celle de la borne supérieure, mais il est qu'il n'est pas possible d'évacuer sans examen le rôle de l'hérédité dans l'explication des différences interpersonnelles en matière de potentialités éducatives.

Le problème reste maintenant de savoir si les différences interindividuelles de potentialités éducative sont à même d'éclairer le pourquoi des écarts de performances dans le système éducatif. Nous examinerons en premier lieu la différentiation des enfants dans la réussite à des tests scolaires pour aborder ensuite l'explication du biais social dans les cursus des élèves issus de différents milieux socio-économiques.

I.3. Réussite scolaire ponctuelle, enfant et milieu de vie

La réussite scolaire nécessite une étude particulière, car si l'intelligence mesurée par le Q.I. entretient des relations avec elle, celles-ci ne sont pas suffisamment étroites pour que l'on puisse substituer l'une à l'autre. On sait par exemple que l'observation d'un Q.I. très faible permet de prédire presque avec certitude des difficultés scolaires, alors que l'observation d'un Q.I. élevé peut être suivie presque indifféremment de la réussite ou de l'échec.

Nous examinerons ultérieurement les rapports entre le Q.I. et la réussite dans le cheminement scolaire sur plusieurs années pour concentrer ici l'attention sur le constat qu'il est possible de faire à un instant donné quant aux connaissances acquises.

Les psychologues ont développé, pour l'évaluation de l'acquisition scolaire, une méthodologie fondée sur des tests d'un type comparable à celui de la mesure de l'intelligence. Le problème est cependant ici très différent. En effet, si pour l'intelligence, la mesure se substitue au concept par l'intermédiaire d'une sorte de relation de définition, il n'en est pas du tout de même pour la réussite scolaire. Celle-ci est une réalité factuelle. Le succès à l'école polytechnique ou l'échec au certificat d'études primaires sont des réalités observables. La difficulté ici vient de l'introduction du temps. Une chose est de maîtriser parfaitement les mécanismes de l'algèbre en classe de 4 ème dans un collège d'enseignement secondaire, une autre chose est de prédire, à cette date, la réussite au baccalauréat section mathématiques élémentaires. En fait, pour que la note à ce test puisse prédire la vraie réussite scolaire future de l'enfant, il faudrait que deux conditions complémentaires soient réalisées.

1° Que les résultats à ces tests soient stables dans le temps, c'est-à-dire que les milieux dans lesquels évoluent les différents enfants, qui sont forcément différenciés n'induisent pas d'écarts grandissant avec le temps. Il faudrait par conséquent que le coefficient de détermination génétique de ce caractère soit proche de l'unité.

2° Que les cursus scolaires soient parfaitement déterminés par la réussite. Il faudrait donc que d'une part, tous les enfants soient également motivés et que, d'autre part, l'affectation des enfants dans les différentes filières et les différents cycles d'enseignement se fasse uniquement en fonction du critère méritocratique. Si au contraire, les facteurs sociaux bouleversent ce libre jeu, alors la répartition des notes ne nous renseignera pas convenablement sur la pluralité des comportements éducatifs futurs.

Par conséquent, lorsqu'on estime l'héritabilité de la réussite scolaire, avec des tests ponctuels, on doit s'attendre à une surestimation importante. En effet, l'action de l'environnement n'est pas limitée, dans le temps, à la date du test, dans la mesure où on a une conception finale de la réussite, et dans la mesure où le milieu joue vraisemblablement un rôle dans les choix éducatifs postérieurs à l'évaluation.

Les psychologues ont développé deux types de tests pour la mesure de l'acquisition scolaire. Il s'agit d'une part de mesures relatives, ou de classements entre enfants du même âge ou du même niveau éducatif et d'autre part, de mesures absolues, de sorte qu'il est possible de comparer directement des enfants d'âge ou d'origine différents. Les tests concernent des mesures de capacités scolaires spécifiques telles que l'étendue du vocabulaire, la qualité de la lecture et de la prononciation, ou la maîtrise d'opérations ou de fonctions arithmétiques, sachant qu'il est possible, par une procédure d'agrégation des différentes échelles, d'obtenir une note globale qui résume la réussite générale de l'enfant.

De façon comparable à la mesure des aptitudes cognitives par le Q.I., il est possible de déterminer une partition de la variance de la réussite scolaire entre une composante héréditaire et une composante environnementale. Il faut toutefois noter que la fidélité de ces tests scolaires est moindre que pour les tests Q.I., puisque le terme d'erreur est responsable d'environ 10 % de la variance totale dans la population. Après correction, 40 % approximativement de la variance semblent s'expliquer par des différences génétiques, et 60 % par conséquence, du fait de différencesliées au milieu. Ce résultat atteste donc de l'importance relativement grande des conditions d'environnement quant à la réussite scolaire de l'enfant et atteste également de la nécessité qu'il y a de ne pas la confondre avec la potentialité éducative Q.I.

Une analyse de la variance plus fine nous permet d'opérer une distinction au sein de la variance d'origine environnementale, entre ce qui est du aux différences de milieu au niveau interfamilial, aussi bien qu'au niveau intrafamilial. Les estimations accordent en général seulement entre 5 et 10 % aux écarts internes à la structure de la famille et entre 50 et 55 % aux écarts entre familles. L'importance relative de ce dernier chiffre ou la faiblesse du premier semble pouvoir s'expliquer par la volonté des parents de rechercher l'égalisation des performances scolaires des différents enfants. Tout se passerait donc comme si chaque famille se fixait une sorte de norme qu'elle s'attacherait à respecter pour chacun.

Nous sommes donc en présence de deux phénomènes complémentaires. D'une part, les parents investissent dans la réussite scolaire de leurs enfants et fixent les objectifs à atteindre, d'autre part, ils ont, dans une certaine mesure, les moyens de cette politique puisque le poids des facteurs environnementaux est relativement lourd. Deux voies sont donc possibles dans l'analyse de l'inégalité d'accès à l'éducation : celle qui passe par l'explication de la pluralité des objectifs des familles, et celle qui s'attache à l'examen des éléments qui font qu'un milieu est plus ou moins propice à la performance scolaire. Nous indiquerons seulement certains des points correspondant à cette deuxième direction, en nous réservant d'approfondir ultérieurement le problème des objectifs familiaux. Ceux-ci en effet ne peuvent se comprendre que dans une vision longitudinale de l'éducation.

Les facteurs de cette réussite scolaire ponctuelle peuvent être mis en évidence en examinant la stabilité des résultats à des tests effectués à des dates différentes. Le caractère faiblement héréditaire implique une stabilité très imparfaite, si bien qu'il est possible de faire ressortir l'effet du milieu en mettant en regard les écarts de performance avec les caractéristiques de l'environnement qui sont supposés les avoir provoqués.

Les recherches, en ce domaine, sont nombreuses ; elles s'attachent en général à l'observation des avantages, ou des handicaps, culturels, économiques ou sociaux. Elles montrent très clairement que le développement scolaire de l'enfant est très lié à ces variables, encore qu'elles ne semblent pas jouer toutes le même rôle suivant l'âge de l'enfant. Ainsi le milieu culturel a vraisemblablement un rôle important dans les premières années scolarisées, alors que les variables économiques ont un impact croissant avec l'âge.

Pour mieux comprendre le poids du milieu, il faut se rappeler qu'on se situe ici au niveau des petites différences interindividuelles et que des avantages presqu'infimes peuvent avoir un effet considérable. Ceci est particulièrement vrai pour les *"élèves moyens"* dans un système d'enseignement segmenté, en filières étanches d'inégale noblesse. Pour mettre mieux en évidence cet effet multiplicateur nous avons repris les données de base de l'étude américaine d'ALEXANDER (1).

Cet auteur a testé des enfants à l'âge de 8 ans puis de nouveau à l'âge de 16 ans, avec un test de lecture. La corrélation entre les deux mesures est 0,52, mais devient 0,79 si on intègre la catégorie d'emploi du père. De plus, si on prend deux sous-populations de réussite identique à 8 ans, mais d'origine sociale différente, on observe des gains plus importants pour le groupe favorisé (note initiale moyenne 3,4-note finale moyenne 8,2) que pour le groupe d'origine modeste. (Note initiale moyenne 3,4-note finale moyenne 5,9). Supposons maintenant que le système éducatif soit méritocratique en fonction de la réussite à ce test de lecture et que l'aiguillage soit tel qu'une note supérieure à 7 conduise à la filière noble, alors qu'une note inférieure à ce niveau, conduirait à une filière courte. Dans ces conditions, la filière noble accueillerait 84 % d'enfants de milieux favorisés et 16 % d'enfants de milieux modestes, les proportions étant inverses dans la filière courte.

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(1) ALEXANDER (M) - *Relation of environment to intelligence and achievements - a longitudinal study* - Chicago - 1961.

Cependant, il ne faut pas hâtivement conclure que les facteurs sociaux sont à eux seuls capables d'expliquer les différences de scolarisation. Des éléments moins directement observables tels que l'équilibre émotionnel de l'enfant sont susceptibles d'avoir une part dans l'explication globale. Ainsi la très importante étude de TERMAN sur des enfants particulièrement doués (Q.I. > 140) laisse apparaître que si la réussite est généralement bonne dans le primaire, elle se différencie dans le secondaire et plus encore au niveau de l'enseignement supérieur.(1) Le point important est la liaison entre la réussite et la stabilité émotionnelle de l'enfant. En outre, la qualité des relations parentales et familiales est sans doute de la plus haute importance quant à la réussite, car c'est vraisemblablement par la transmission des parents vers les enfants que se forment les motivations de ces derniers pour la réussite. Ainsi, on observe dans les filières courtes (type III) une sous-représentation globale des catégories sociales supérieures, mais une très forte sur-représentation des familles désunies de cette même origine.

Il est difficile ici d'ailleurs d'aller au-delà de cette nomenclature des causes qui interagissent pour autoriser, favoriser, ou interdire la réussite scolaire. A ce niveau, nous nous contenterons de cette description ponctuelle pour pénétrer maintenant dans l'observation directe du système scolaire et estimer factuellement certaines des inégalités qu'il engendre.

I.4. Observations sur le système français

Si nous revenons à la présentation des propositions conditionnelles du début de ce texte, nous pouvons maintenant essayer d'estimer la force de la première d'entre elles. Elle exprimait que pour suivre une filière d'enseignement, il fallait disposer d'un niveau minimal de compétences. La question est alors de savoir s'il s'agit d'une condition de nécéssité et/ou d'une condition de suffisance. Il semble clair, dans le cas extrême de la débilité mentale, que certains enfants sont inaptes à suivre l'enseignement formel ordinaire ; mais, que reste-t-il de cette condition pour 95 % des enfants ? La réponse sera bien évidemment différente suivant que le niveau minimum requis est plus ou moins sélectif. Si pour une filière d'éducation, il convient de disposer de compétences très élevées, on peut alors s'attendre à ce que cette condition joue un rôle important. Si au contraire, les compétences requises sont telles qu'une population très nombreuse les possède, alors on devrait observer une grande ouverture de cette filière. Dans le cas où les faits ne s'accorderaient pas à cette ouverture potentielle, cela indiquerait que les compétences seules participent peu de l'explication et que par conséquent, ce sont d'autres variables qui sont décisives.

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(1) TERMAN (L) et ODEN (M) - *The gifted group at mid-life* - Stanford University Press - 1959.
ELDER (G) - *Family structure and educational attainment* - American sociological review - n°30 - 1965 a montré dans cinq pays que la réussite scolaire était meilleure dans un climat familial libéral que lorsque les parents usaient fortement de l'autorité à l'égard de leurs enfants. Ce phénomène étant d'ailleurs confirmé quel que soit le sexe, la catégorie sociale ou le type d'habitat.

Un point reste encore dans l'ombre dans cette formulation. Il s'agit de la définition utile de ce que sont ces *"compétences"*. On peut les expliciter à plusieurs niveaux et nous nous attacherons tout d'abord rapidement à ces définitions pour aborder ensuite l'examen de la capacité méritocratique de l'enseignement français.

I.4.1. Définition des compétences

Plusieurs niveaux doivent être retenus dans l'explicitation de la qualité individuelle, même si on se limite à cette frange des aptitudes qui est prise en compte par le système éducatif. Il faut au moins séparer entre potentialités innées et réalisations observées, dans la mesure où il existe un biais socio-environnemental entre les deux. De plus, il faut distinguer au plan de l'observation entre la performance mesurée par un test externe à la notation scolaire et la réussite telle qu'elle se présente sous forme de notes dans les différentes matières enseignées.

La première taxonomie pose des problèmes délicats car les potentialités individuelles ne se prêtent pas à la mesure si bien que seules des estimations plus ou moins hardies peuvent être effectuées. Plusieurs hypothèses peuvent être testées, mais on doit s'attendre à ce que l'explication par les potentialités soit moins bonne que celle par les réalisations du fait de la covariance positive entre l'hérédité et l'environnement dans la population.

Si nous acceptons les tests Q.I., il ne sera pas indifférent de prendre en compte le score observé ou le score redressé après ajustement pour prendre en considération l'effet du milieu. Nous appelerons cette deuxième situation celle de la méritocratie généralisée, et la première, celle de la méritocratie réduite. Dans ce dernier cas, nous faisons l'hypothèse que ponctuellement, le Q.I. d'un enfant est une mesure convenable de ses capacités cognitives présentes sans se préoccuper des facteurs ou des conditions qui ont contribué à les former.

La sélection opérée par l'enseignement remplira les conditions de la méritocratie réduite si les enfants classés en fonction de leur Q.I. sont choisis en fonction de cet unique critère. La formulation précédente, qui semble se limiter au cas où tous les enfants se présenteraient effectivement à l'aiguillage de la sélection, doit être comprise de façon extensive en simulant un choix global, même si le système est constitué par plusieurs niveaux de sélection.

Deux problèmes interfèrent ici : d'une part, celui du choix des élus, et d'autre part, celui du nombre retenu. Faut-il en effet retenir les n enfants possédant le Q.I. le plus élevé parce que n représente les besoins de l'économie en main d'oeuvre tres qualifiée, ou bien faut-il en retenir n' parce que les n' premiers au classement auraient les capacités intellectuelles compatibles avec l'assimilation des connaissances à ce niveau ? Comment ajuster n et n' pour que tous les enfants se réalisent pleinement dans l'éducation et que les diplômés aient les emplois qui correspondent à leur qualification et à leurs espérances. Bien que ce problème de non convergence d'objectifs soit au coeur de l'analyse de l'éducation, nous le passerons ici sous silence en nous contentant de faire l'hypothèse que le nombre d'élèves, à un niveau donné, a été fixé de façon exogène. Dans ces conditions, nous nous attacherons seulement à comparer la structure observée avec une structure méritocratique, au sens réduit.

De façon comparable à l'analyse en termes de méritocratie réduite Q.I., il sera intéressant de pénétrer davantage le système éducatif en observant si le choix de la filière vers le niveau j est fonction de la réussite scolaire, caractérisée par les notes de l'enseignant, au niveau $(j-1)$.

Nous chercherons donc à examiner le biais social qui existe, dans notre enseignement, entre la structure des scolarisés à un niveau donné, et celle des enfants caractérisés par leurs qualités, quelle soit sous forme Q.I. ou sous la forme factuelle de la notation scolaire.

I.4.2. Classes sociales, Q.I. réussite et sélection scolaires

Nous procèderons en deux étapes successives. En premier lieu, nous comparerons les structures sociales des caractères Q.I. et réussite scolaire pour aborder en second lieu l'analyse sociale des procédures de sélection. En ces domaines, la France possède des renseignements statistiques relativement riches du fait des recherches nombreuses et de qualité effectuées par l'Institut National d'Etudes Démographiques (INED) et l'Institut National d'Orientation Scolaire et Professionnelle (INOP) nous les utiliserons largement dans ce texte.

L'enquête nationale sur le niveau intellectuel des enfants d'âge scolaire qui a porté sur environ 100.000 enfants scolarisés nous donne des indications très fiables sur la distribution des notes Q.I. (1) suivant plusieurs caractères dont la catégorie sociale d'origine, le nombre d'enfants dans la famille, et le rang dans la fratrie. Limitons-nous pour le moment à observer la répartition du Q.I. dans les diverses classes sociales, chacune des répartitions étant caractérisée par ses deux premiers moments (la moyenne et la variance).

GROUPE SOCIAL	Q.I. moyen	variance	écart-type	Q.I. moyen
Ouvriers agricoles	*93.5*	*172*	*13.1*	*95.6*
Agriculteurs	*96.4*	*172*	*13.1*	
Ouvriers spécialisés Manoeuvres	*94.8*	*177*	*13.3*	*96.7*
Ouvriers qualifiés contremaîtres	*98.8*	*177*	*13.3*	
Employés	*101.8*	*188*	*13.7*	
Artisans-commerçants	*103.0*	*193*	*13.9*	
Cadres moyens	*107.9*	*188*	*13.7*	*108.9*
Professions libérales Industriels	*107.4*	*196*	*14.0*	
Cadres supérieurs	*111.5*	*185*	*13.6*	

Les moyennes s'ordonnent approximativement suivant la hiérarchie des emplois occupés par le chef de famille, mais bien que près de 20 points séparent en moyenne les catégories sociales les plus extrêmes, il faut garder à l'esprit qu'il y a de très larges recouvrements.

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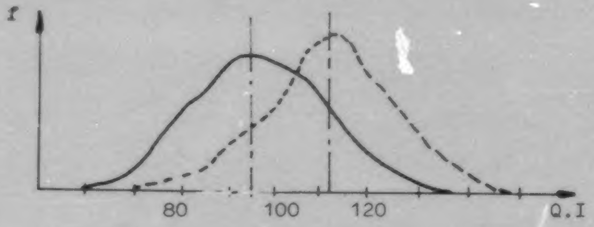
(1) Enquête Nationale sur le niveau intellectuel des enfants d'âge scolaire - Travaux et documents, cahier de l'INED - n° 64 - P.U.F. - 1973.



Essayons de voir maintenant si ces écarts en termes de Q.I. entre les différentes catégories sociales sont à même d'expliquer l'inégalité sociale observée en matière de taux de scolarisation.

Nous utiliserons ici les résultats d'enquêtes longitudinales directes à l'exclusion des calculs transversaux qui rapportent une population scolarisée à une population potentielle pour ne pas introduire les redoutables problèmes méthodologiques liés à ce dernier mode de détermination des taux. Nous aurons recours aux résultats de différentes enquêtes et notamment, de la très importante analyse longitudinale. menée par l'INED entre 1962 et 1972 (1). Environ 17.000 enfants ont été suivis au cours de cette période, un très grand nombre d'entre eux restant dans l'échantillon au terme de l'étude.

A la rentrée scolaire 1971-72, nous connaissons par catégorie sociale, le nombre d'enfants de l'échantillon, étudiants dans l'enseignement supérieur, quel qu'en soit le type (Université, Instituts de Technologie, ou écoles diverses). En rapportant ces chiffres à la population de base, corrigée par les pertes statistiques, nous pouvons calculer les taux de scolarisation vrais des différentes classes professionnelles au niveau du supérieur.

GROUPE SOCIAL	Taux de bacheliers (%)	Taux scolarisation Ens. sup. (%)	Taux de passage Bac.Ens.sup. (%)
Ouvriers agricoles	*9.5*	*6.1*	*64.2*
Agriculteurs	*15.9*	*9.9*	*62.3*
Ouvriers	*12.4*	*8.2*	*66.1*
Employés	*25.8*	*21.2*	*82.2*
Artisans-commerçants	*24.4*	*19.6*	*81.2*
Cadres moyens	*50.2*	*44.2*	*88.1*
Professions libérales	*51.9*	*52.2*	*100.0*
Cadres supérieurs	*57.4*	*56.9*	*99.1*

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(1) GIRARD (A) et BASTIDE (H) - *De la fin des études élémentaires à l'entrée dans la vie professionnelle ou à l'université* - Population - mai-juin 1973.

La question est maintenant de savoir si cette structure sociale de scolarisation peut s'expliquer par celle des Q.I. présentée précédemment.

Nous utiliserons ici une méthodologie quelque peu artificielle, qui est fondée sur l'hypothèse suivant laquelle les catégories économiquement et culturellement défavorisées ne pourraient obtenir, à qualités intellectuelles données, des taux de scolarisation supérieurs à ceux des classes qui ne supportent pas ce handicap. Cette méthode est en effet artificielle puisque le Q.I. est une mesure elle-même sensible aux effets de la qualité du milieu. C'est pourquoi nous ferons des estimations relativement précises, mais d'intérêt limité dans le cadre de la méritocratie réduite, en les complétant d'évaluations approximatives dans le cadre de la méritocratie généralisée, c'est à dire après redressement du biais culturel inhérent aux mesures disponibles.

En premier lieu, essayons de mettre en évidence le biais entre la distribution des aptitudes Q.I. et celle de la scolarisation au niveau supérieur. La technique utilisée est celle de la coupure. Elle se fonde sur l'observation de la classe sociale la plus favorisée et suppose que les échecs scolaires dans cette catégorie sont dus, soit à des aptitudes insuffisantes, soit à des causes diverses aléatoires, non spécifiques à cette classe. Sous ces hypothèses, on peut estimer ce que seraient les taux de scolarisation des autres classes sociales, si leur seul handicap propre résidait dans la limitation des aptitudes intellectuelles, ou bien,par complémentarité, si le biais issu des conditions socio-économiques des familles était supprimé.

La connaissance de la répartition du Q.I. dans les différentes classes sociales, ainsi que celle des taux de scolarisation dans l'enseignement supérieur, permet de simuler les taux méritocratiques, au sens réduit. Le tableau ci-après, donne donc la répartition de cet élément dans les différentes catégories professionnelles.

GROUPE SOCIAL	Taux de scolarisat. ens. sup. (%)	Taux scolarisation méritoc. réd. (%)	Rapport
Ouvriers agricoles	6.1	17.0	2.8
Agriculteurs	9.9	22.1	2.2
Ouvriers	8.2	23.9	2.9
Employés	21.2	35.8	1.7
Artisans-Commerçants	19.8	40.0	2.0
Cadres moyens	44.2	53.4	1.2
Professions libérales	52.2	52.2	1.0
Cadres supérieurs	56.9	63.0	1.1

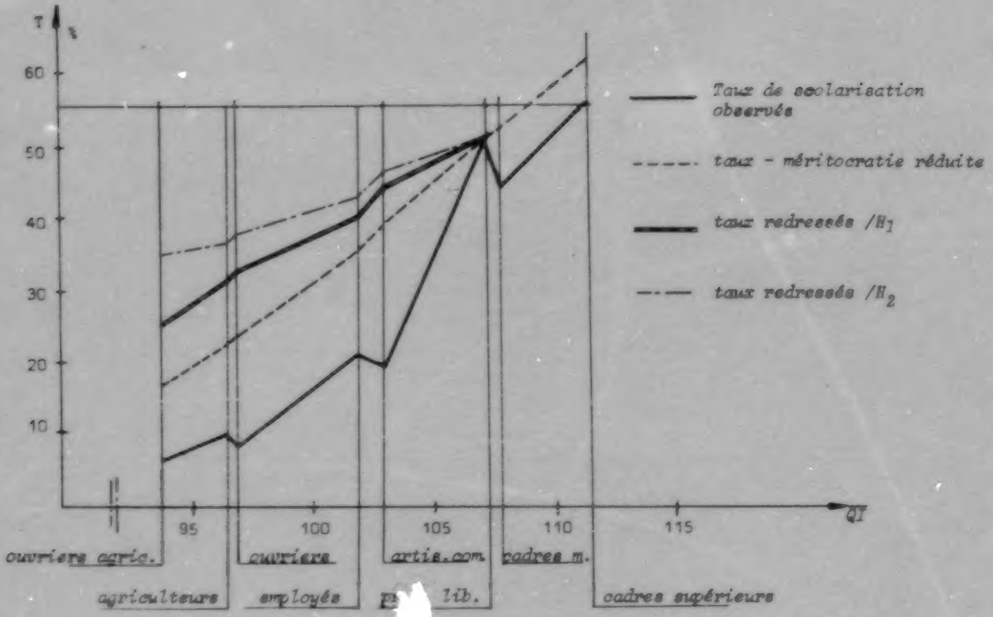
Il en ressort que si les procédures de sélection scolaire étaient fondées exclusivement sur le critère de la potentialité intellectuelle mesurée par le Q.I., on aboutirait à une diminution de l'inégalité (le rapport des taux entre les catégories extrêmes passant de 9.3 à 3.7), mais au maintien d'une structure très diversifiée.

L'étape suivante serait maintenant de s'attacher au redressement du biais culturel des tests classiques et d'aborder l'estimation des taux de scolarisation dans le cadre de la méritocratie généralisée. La difficulté réside bien évidemment dans la quantification de ce biais. L'analyse de la variance du Q.I. entre ce qui est d'origine génétique et environnemental, ne vaut qu'au plan de la population globale et ne peut, en toute rigueur, nous éclairer sur la nature des différences entre classes sociales. C'est pourquoi nous nous contenterons de tester la sensibilité des évaluations par rapport à la valeur des écarts de performance Q.I. dus aux conditions économiques et culturelles pendant le développement.

Pour juger de la sensibilité des estimations, nous simulerons deux hypothèses, qui sont toutes deux vraisemblables sans qu'il nous soit possible de dire que la seconde est extrême tant est grande notre ignorance en ce domaine. Les coefficients de redressement (translation de n points de l'axe Q.I.) choisis sont indiqués, ainsi que les taux correspondant, dans le tableau ci-dessous :

GROUPE SOCIAL	Taux de scolariset. ens.sup (%)	HYPOTHESE 1		HYPOTHESE 2	
		coefficient	taux	coefficient	taux
Ouvriers agricoles	*6.1*	*4*	*25.4*	*8*	*35.3*
Agriculteurs	*9.9*	*4*	*31.1*	*6*	*36.6*
Ouvriers	*8.2*	*4*	*33.3*	*6*	*38.3*
Employés	*21.2*	*2*	*40.8*	*3*	*43.7*
Artisans-commerçants	*19.8*	*2*	*45.5*	*3*	*48.3*
Cadres moyens	*44.2*	*0*	*53.4*	*0*	*53.4*
Professions libérales	*52.2*	*0*	*52.2*	*0*	*52.2*
Cadres supérieurs	*56.9*	*0*	*63.0*	*0*	*63.0*

Nous assistons alors à une nouvelle réduction des disparités potentielles des taux de scolarisation, bien que les différences restent très marquées entre les classes sociales extrêmes, ceci, bien entendu dans le cadre des hypothèses que nous avons retenues.



Supposons un temps que l'hypothèse II ait quelque apparence de vraisemblance, quelle signification peut on donner aux différents niveaux de scolarisation simulés. Comparons les catégories fils d'ouvriers - fils de professions libérales. L'écart entre les taux observés (52.2 % - 8.2 %) peut se partitionner de la façon suivante :

. Le taux de scolarisation des fils d'ouvriers passerait de 8.2 % à 23.9 % si cette catégorie faisait un usage optimal (par référence aux classes économiquement favorisées) des capacités intellectuelles dont elle dispose effectivement. Ce chiffre de 23.9 % peut donc être perçu comme l'objectif maximal d'une politique de court terme en vue de réduire les inégalités quant à l'accès à l'enseignement supérieur. Ce but pourrait être visé dans la mesure où l'on s'attacherait à faire tomber les handicaps socio-économiques à la scolarisation des familles défavorisées.

. Dans une deuxième étape, le taux de scolarisation des fils d'ouvriers pourrait passer de 24 % à 40 % environ par réduction des hendicaps culturels et matériels des familles quant à l'éducation informelle des enfants (apprentissage du langage, des fonctions logiques ...). Cette deuxième étape est sans aucun doute très difficile à mettre en oeuvre, et ceci d'autant plus qu'il conviendrait peut être ici de remettre en cause la position centrale de la famille quant à l'éducation et au développement des enfants.

Il semble donc qu'il soit possible, par une, ou des politiques appropriées, de réduire dans d'assez grandes proportions, les inégalités d'accès à l'éducation (ici l'enseignement supérieur). Cependant, en dépit du caractère approximatif des évaluations H_1 et H_2, il semble aussi qu'il serait difficile et plus vraisemblablement impossible d'opérer une réduction complète. Des pays socialistes s'y sont essayés avec des moyens importants et force est de reconnaître le caractère imparfait de la réussite de leur entreprise (1) (encore que la comparaison avec des pays tels que la France leur soit plutôt flatteuse).

Nous essaierons de préciser la signification des inégalités à l'école, en les comprenant comme symptôme particulier d'une société inégalitaire, dans la deuxième partie de ce texte, attachons-nous tout d'abord à poursuivre l'examen du système scolaire en examinant les procédures de sélection successives qui ont conduit à la situation observée dans l'enseignement supérieur.

Les effectifs dont nous avons analysé la scolarisation dans l'enseignement supérieur à la rentrée 1971-1972 font partie d'une cohorte qui quittait l'enseignement primaire pour accéder au niveau secondaire en 1962. Certes l'organisation du système éducatif a évolué depuis cette date, néanmoins, c'est à partir de cette situation ancienne qu'on peut largement éclairer la situation actuelle observée (2).

En 1962, la classe suivie à l'issue du C.M.2 était décisive quant aux possibilités futures de scolarisation. La sélection s'opérait suivant trois directions possibles : en premier lieu, le maintien dans l'enseignement primaire en vue de préparer le certificat de fin d'études primaires (C.E.P.) en second lieu, l'entrée dans un collège d'enseignement général (C.E.G.), qui conduisait au brevet d'études du premier cycle (B.E.P.C.), avec dans une certaine mesure, possibilité de rattraper certaines filières du lycée, et enfin troisième voie possible, la plus noble, entrée dans un lycée classique et moderne qui menait au baccalauréat, fourches caudines de l'enseignement supérieur.

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(1) MARKIEWICZ-LAGNEAU (J) - *Education égalité et socialisme* - Anthropos - PARIS - 1969-

(2) Voir différents articles dont l'essentiel a été publié dans "Population" et l'enseignement - PUF et INED - PARIS - 1970

A partir de 17.000 enfants de l'échantillon de l'INED, les taux de passage pour les différentes classes sociales d'origine, s'établissent comme suit :

GROUPE SOCIAL	Taux de passage vers primaire C.E.P. (%)	Taux d'entrée en 6 ème (%)	Taux d'entrée au lycée (%)
Ouvriers agricoles	*68*	*32*	*11*
Agriculteurs	*60*	*40*	*16*
Ouvriers	*55*	*45*	*16*
Employés	*33*	*67*	*33*
Artisans-commerçants	*34*	*66*	*32*
Cadres moyens	*16*	*84*	*55*
Professions libérales	*7*	*93*	*75*
Cadres supérieurs	*6*	*94*	*75*

Cette structure préfigure déjà, alors que les enfants ont en moyenne entre 10 et 12 ans, la répartition sociale de l'enseignement supérieur, dix années après. L'orientation était donc très précoce, mais elle était aussi quasiment définitive puisque la passerelle du C.E.G. vers le lycée n'était empruntée que par une population relativement peu nombreuse. Il est donc particulièrement utile d'analyser cette bifurcation qui, semble-t-il, était si décisive à cette époque. Cet examen est utile parce qu'il nous permettra de comprendre la fabrication des taux actuels dans l'enseignement supérieur, et parce que si aujourd'hui la sélection s'opère à un ou des niveaux différents, il n'y a pas de raison de penser que les procédures sont fondamentalement changées.

Comme nous l'avons fait au niveau de l'université, posons-nous la question de savoir si les différences de scolarisation sont susceptibles de s'expliquer par des différences d'aptitudes. Calculons en premier lieu ce que seraient les taux en situation de méritocratie réduite.

Qualitativement, les résultats sont semblables au cas de l'enseignement supérieur, à savoir qu'on assisterait à une réduction très importante de l'inégalité des taux de scolarisation, mais que des différences notables subsisteraient néanmoins, surtout dans la filière lycée. Globalement, on doit s'attendre à ce que l'inégalité sociale soit d'autant plus grande que la sélection est sévère en termes de qualités requises.

GROUPE SOCIAL	ENTREE EN 6 ème		ENTREE AU LYCEE	
	taux observés	méritocrat. réduite (%)	taux observés	méritocrat. réduite (%)
Ouvriers agricoles	32	70.6	11	38.9
Agriculteurs	40	76.3	16	45.0
Ouvriers	45	76.3	16	46.0
Employés	67	86.6	33	61.2
Artisans-commerçants	66	87.6	32	63.9
Cadres moyens	84	93.8	55	75.8
Professions libérales	93	93.0	75	75.0
Cadres supérieurs	94	96.0	75	83.8

Nous venons de simuler ce que deviendrait les taux de scolarisation dans un système de sélection fondé sur le Q.I. ; en fait, cette *potentialité éducative* n'est pas une donnée visible et n'était pas à la disposition de l'institution scolaire au moment de l'orientation. Les éléments sur lesquels pouvaient se baser les *"orienteurs"* étaient essentiellement au nombre de quatre :

- . la réussite de l'enfant au C.M.2
- . l'âge à l'issue du C.M.2 (prenant en compte le retard accumulé dans le primaire),
- . l'avis du maître qui a suivi l'enfant en C.M.2
- . le désir des parents.

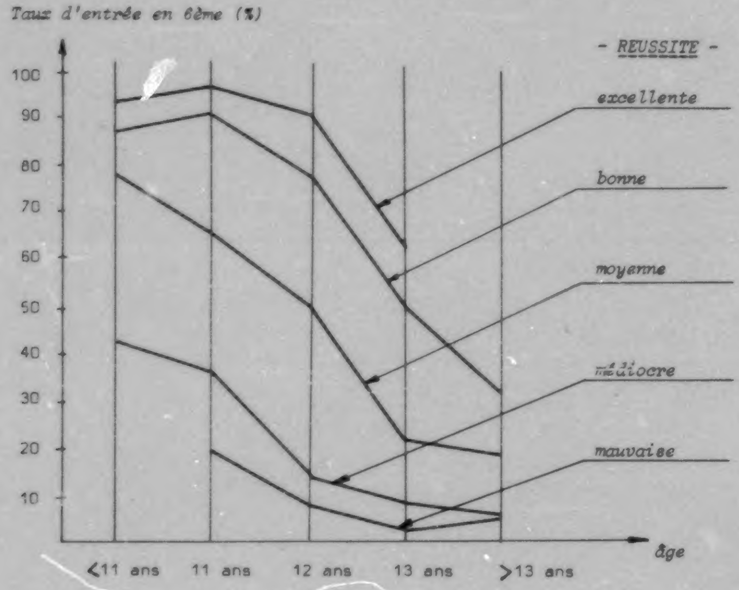
Reprenons cette fois encore, les études de l'INED et recherchons le mode d'action et le poids de ces quatre éléments.

Examinons tout d'abord les deux premiers éléments qui sont factuels, alors que les deux autres laissent davantage de place à l'interprétation.

REUSSITE	taux d'entrée en 6 ème (%)	AGE	taux d'entrée en 6 ème (%)
excellente	93	*moins de 11 ans*	86
bonne	83	*11 ans*	76
moyenne	51	*12 ans*	48
médiocre	15	*13 ans*	18
mauvaise	6	*14 ans et plus*	12

La réussite scolaire en C.M.2. semble plus importante que l'âge dans l'orientation. En fait, ces deux facteurs se combinent, et si l'âge a peu d'influence sur les taux d'entrée en 6 ème pour des enfants dont la réussite est mauvaise, il devient déterminant pour des enfants dont la réussite est moyenne ou bonne.

Le graphique suivant repris de données regroupées tirées de A. GIRARD et P. CLERC explicite les taux de scolarisation, pour la population globale en fonction de l'âge au moment de l'orientation et de la réussite dans le primaire.



La diversité sociale observée précédemment s'explique-t-elle alors par une réussite moindre des catégories professionnelles défavorisées et/ou par une moins grande précocité ? Ces deux critères de la sélection sont-ils à même de faire reconnaître les élus majoritairement dans les familles des classes dominantes ? La réponse à ces questions peut être trouvée dans l'examen des taux de scolarisation en fonction de la réussite et de l'âge pour les différentes classes sociales. Ainsi, pour des enfants de réussite moyenne et ayant fait une scolarité primaire sans redoublement, les taux d'entrée en 6 ème s'étagent de 35 % pour les fils d'agriculteurs à 99 % pour les fils de cadres supérieurs.

Le tableau ci-dessous simule ce que seraient les taux d'entrée en 6 ème si toutes les catégories sociales adoptaient, à âge et réussite donnés, les taux de passage de la sous-population de référence professions libérales. On observe que les inégalités seraient très largement réduites (le rapport entre les deux catégories extrêmes passant de 2,9 à 1,25) pour se conformer plus ou moins aux différentiations anticipées par l'examen des répartitions Q.I. L'écart d'avec la structure observée nous renvoie alors à l'analyse des deux autres critères à la disposition des orienteurs pour opérer la sélection, à savoir l'avis des maîtres et le désir exprimé par les parents.

GROUPE SOCIAL	taux entrée en 6 ème observés (%)	taux entrée en 6ème taux de passage prof. lib.à âge-réus.	Rapport
Ouvriers agricoles	*32*	*75*	*2.34*
Agriculteurs	*40*	*82*	*2.04*
Ouvriers	*45*	*78*	*1.73*
Employés	*67*	*83*	*1.24*
Artisans-commerçants	*66*	*83*	*1.26*
Cadres moyens	*84*	*93*	*1.11*
Professions libérales	*93*	*93*	*1.0*
Cadres supérieurs	*94*	*93*	*0.99*

Ces deux caractéristiques sont en effet importantes car l'usage à l'orientation, est de suivre l'avis des parents dans la mesure où l'enfant semble avoir les compétences requises pour avoir une scolarité future normale. Pour certaines catégories, les parents sont très en deça des possibilités intellectuelles de leurs enfants, alors que dans les catégories favorisées, les familles visent souvent les carrières maximales.

Par conséquent, la classe suivie par l'enfant à l'issue du C.M.2., qui prédétermine dans une large mesure ses possibilités d'avenir scolaire, est le reflet presqueexact de la volonté parentale. Quant à l'avis du maître, il se fonde sur les deux critères de la réussite scolaire et de l'âge, avec néanmoins un biais à l'avantage des catégories sociales favorisées. Ainsi, sur 100 enfants d'agriculteurs, 36 ont une réussite excellente ou bonne et 33 sont proposés par l'instituteur pour entrer dans une classe de 6 ème de lycée. Pour 100 enfants de cadres supérieurs, les réussites bonnes ou excellentes sont atteintes par 55, alors que 75 sont proposés par le maître. Il semble ici que l'enseignant anticipe, au-delà de l'entrée en 6 ème, les handicaps économiques et culturels des familles défavorisées et les stimulations et soutiens des familles aisées.

GROUPE SOCIAL	ECOLE PRIMAIRE		C.E.G.		LYCEE CLAS. & MODERNE	
	désirs des parents %	taux de passage %	désirs des parents %	taux de passage %	désirs des parents %	taux de passage %
Ouvriers agricoles	63.3	68	23.5	21	13.2	11
Agriculteurs	58.3	60	26.0	24	15.7	16
Ouvriers	51.6	55	32.6	29	15.8	16
Employés	28.0	33	35.5	44	36.5	33
Artisans-commerçants	29.0	34	35.5	44	35.5	32
Cadres moyens	10.9	16	29.4	29	59.7	55
Professions libérales	6.4	7	18.1	19	75.5	75
Cadres supérieurs	5.3	6	12.8	19	81.9	75

A titre de conclusion quant à ces quelques observations sur le système éducatif français, on peut retenir les points suivants :

. Les aptitudes intellectuelles à vocation scolaire, telles qu'elles sont mesurées par le Q.I. sont inégalement réparties chez les enfants des différentes classes sociales, et bien que la réussite aux tests soit influencée par la qualité du milieu, une part des différences s'explique par des causes génétiques.

. Les différences de cursus scolaires d'enfants d'origine sociale différente s'expliquent pour une part par des différences de Q.I. Toutefois, cette part (1) qui est faible à l'issue du primaire (entre 25 et 35 %) croît au fur et à mesure qu'on s'élève dans le niveau d'études (entre 60 et 75 %). Dans la mesure où les tests ne seraient pas affectés par les conditions environnementales, ces proportions seraient réduites (respectivement 10 % et 40 % environ suivant l'hypothèse H2).

. Outre les différences de réussite scolaire, qui sont faibles à l'issue du primaire, les écarts sont largement creusés par le comportement des familles. A réussite égale, les familles modestes ont des ambitions modestes, alors que les familles aisées visent des diplômes élevés.

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(1) La signification de cette part est d'ordre statistique. Il ne s'agit que d'une conception additive d'effets purs due à différents facteurs.

. L'organisation du système éducatif français en filières relativement étanches, avec orientation précoce est à même de favoriser un accès inégalitaire à la scolarisation des enfants des différentes classes sociales.

La pluralité des comportements éducatifs des familles ne s'explique pas convenablement par les différences d'aptitudes, c'est donc l'aspect demande individuelle qui doit être privilégié ; l'offre en effet, ne semble pas déterminante, mais plutôt déterminée dans une organisation libérale telle que celle de la France. L'individu, par sa seule inscription en université par exemple, est capable de créer l'offre correspondant à son désir. La difficulté est que des facteurs tels que ceux qui ont été abordés précédemment opèrent une déformation entre les demandes potentielles des familles et les scolarisations effectives. Cependant, il paraît clair que les inégalités de qualités intellectuelles sont fortement accentuées par les inégalités dans les désirs scolaires des familles.

II. DES AMBITIONS EDUCATIVES FAMILIALES DIFFERENCIEES

La recherche des raisons pour lesquelles les familles désirent, de façon explicite ou implicite, tel type ou tel niveau de scolarisation plutôt que tel autre, a été menée de façon active et variée par de nombreux sociologues. Le simple recensement de la littérature existante serait déjà une oeuvre considérable et nous nous contenterons ici d'opérer un classement qui aura pour but de faire ressortir les hypothèses et les acquis des différentes écoles d'analyse. Dans une deuxième étape, nous nous attacherons à présenter quelques propositions unifiantes qui permettraient, par un modèle d'inspiration économique, de prendre en compte la réalité des structures observées à un instant donné ainsi que leur évolution dans le temps.

II.1. Les hypothèses et les acquis de la sociologie

En matière de désirs de scolarisation des familles pour leurs enfants, les nombreuses enquêtes menées dans divers pays attestent d'une grande différentiation entre les groupes sociaux. De plus, un puissant effet d'interaction est également mis en évidence. Ainsi, lorsqu'on enquête à un point intermédiaire du système éducatif, sur les aspirations des parents en fonction de la réussite scolaire de l'année précédente, on observe que les désirs parentaux sont d'autant plus sensibles à la réussite de l'enfant que le statut social de la famille est bas. Citons par exemple, l'étude de BOUDON et BOURRICAUD effectuée au niveau de la classe de 3 ème de l'enseignement secondaire dans l'académie de Bordeaux. La population étudiée est particulière puisqu'elle est composée d'enfants sélectionnés par le filtre de 9 années de scolarité, sélection qui a opéré à partir des aptitudes, mais aussi des désirs des familles. On observe que pour les catégories professionnelles élevées, les aspirations sont pratiquement indépendantes de la réussite (environ 70 % visent un statut élevé), alors que pour les catégories sociales modestes, les aspirations d'une part sont inférieures même pour une très bonne réussite, et d'autre part, décroissent très rapidement quand la réussite est moins bonne, (64 % quand la réussite est élevée, 32 % quand la réussite est moyenne et 28 % quand elle est basse).

Les sociologues ont développé plusieurs types d'analyse pour *expliquer*, pour rendre compte de ces structures et du caractère pluriel des scolarisations individuelles. Il s'agit de théories macrosociologiques qui prennent en considération la société globale dans son mode hiérarchisé et il s'agit ensuite de théories de type microsociologique dont la forme peut être double : d'une part, des analyses qui se réfèrent au modèle culturel sous-jacent à chacune des classes sociales, et d'autre part, des recherches fondées sur les conditions individuelles des familles devant l'éducation. Dans ce dernier axe, on suppose que pour les facteurs de la décision éducative, il y a une certaine homogénéïté à l'intérieur des groupes, si bien que les inégalités observées apparaîssent liées à l'appartenance sociale.

Nous examinerons successivement ces différentes écoles de façon quelque peu lapidaire, renvoyant le lecteur aux ouvrages originaux pour des informations complémentaires.

II.1.1. Théories macro-sociologiques

Cet axe de recherche est principalement représenté en France par les travaux de P. BOURDIEU et J.C. PASSERON (Les héritiers, puis la reproduction). L'école est considérée comme une courroie de transmission des avantages possédés par la classe dominante d'une génération à la suivante. Pour remplir son rôle de transmission aux héritiers, l'école véhicule la culture des classes bourgeoises. Comme par définition, les classes modestes ne la possèdent pas, il s'ensuit que l'enseignement estampille et légalise les élus parmi les descendants de la bourgeoisie. Quant aux enfants d'origine modeste, ils ne sont pas tentés de troubler l'ordre établi, puisqu'ils perçoivent, par l'observation de leurs semblables, que le savoir à un haut niveau leur est inaccessible.

La difficulté, dans ce type d'analyse vient de la quasi-impossibilité d'effectuer des tests qui seraient susceptibles de mettre la théorie à l'épreuve, du fait d'une certaine circularité du schéma explicatif.

SOROKIN avait déjà émis l'idée suivant laquelle les sociétés ont tendance à se reproduire homothétiquement dans le temps. Cependant, la théorie développée par cet auteur est moins extrême que celle de BOURDIEU et PASSERON, et échappant pour partie au raisonnement circulaire, elle autorise une évolution dans le temps de la structure des scolarisations ; ce qui est impossible dans la version des auteurs français. Pour SOROKIN la raison de la stabilité dans le temps de la société tient au rôle régulateur qu'exerce la famille. Dans les sociétés traditionnelles, la famille, système de solidarité est le pivot de l'organisation sociale. Pour que la famille reste un noyau uni, il convient donc que les enfants visent un statut comparable à celui des parents, si bien que la mobilité, vers le bas comme vers le haut, est jugée indésirable. On comprend alors l'évolution des taux de scolarisation dans le temps, dans la mesure où le rôle de la famille a tendance à s'affaiblir. Cependant cette analyse présente le même inconvénient que celle de BOURDIEU et PASSERON, elle est finaliste et ne se prête pas à l'épreuve du test qui déciderait de sa validation ou de son rejet.

Examinons maintenant les recherches qui n'appréhendent pas la société dans son ensemble, mais qui s'attachent à l'examen des scolarisations au niveau de l'individu et de sa famille, tutrice des choix éducatifs.

II.1.2. Recherches micro-sociologiques

Les observations faites sur le système français nous avaient laissé entrevoir le rôle de la volonté de la famille dans le choix scolaire à l'issue de l'enseignement primaire. Pour BOURDIEU et PASSERON, les familles modestes accepteraient bien de scolariser leurs enfants, mais elles en sont dissuadées par l'observation des fréquences *ex post* de scolarisation et non de réussite par groupe social. Ces fréquences sont alors perçues comme des probabilités *ex ante* de réussite et guident les choix individuels. A ce niveau, cette approche est micro-économique, cependant, elle fait la confusion du taux de scolarisation et du taux de réussite si bien qu'on comprend mal pourquoi les individus agissent ainsi. KAHL et HYMAN ont essayé d'expliciter ce point. Pour eux, les inégalités sont dues au fait que la liaison entre l'enseignement et la réussite professionnelle est perçue comme étant de plus en plus lâche au fur et à mesure qu'on descend dans la hiérarchie sociale. La question de savoir pourquoi la valeur, l'utilité attachée à l'école varie d'une classe sociale à l'autre, reste néanmoins en suspens.

Une voie d'investigation possible consiste à explorer le processus du choix éducatif individuel. On peut ainsi considérer que la famille est un agent décisionnel rationnel qui organise l'éducation de ses enfants en fonction des moyens dont elle dispose et des contraintes qu'elle supporte. Cette direction de recherche présente en outre l'avantage d'autoriser une évolution de la structure des taux de scolarisation dans le temps, dans la mesure où les conditions du choix évoluent elles-mêmes.

Le modèle que nous allons maintenant présenter est un modèle d'inspiration économique dans lequel chaque famille est supposée optimiser la carrière éducative de ses enfants, l'éducation étant perçue comme un investissement. Il définit des situations optimales et fait l'hypothèse que la probabilité pour qu'un type de scolarisation soit retenue est d'autant plus grande qu'il se rapproche de cet optimum.

II.2. Un modèle d'explication d'origine économique

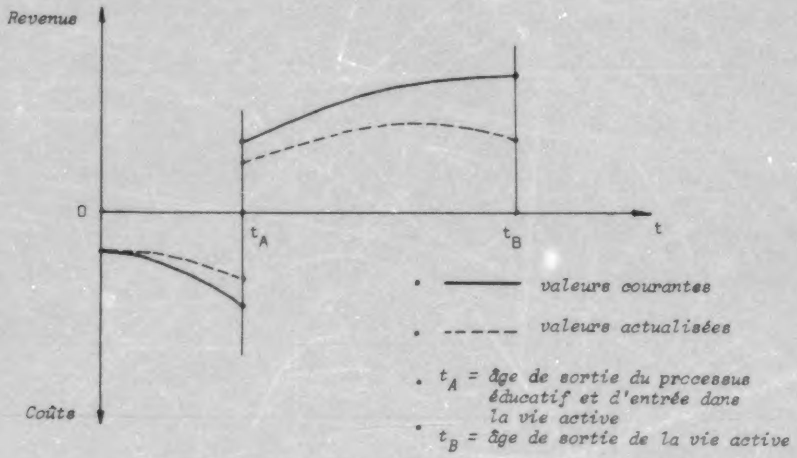
Les recherches principalement d'origine anglo-saxonne, relatives à une approche économique de la demande d'éducation sont fondées sur une double hypothèse : la première est que les individus sont des agents économiques rationnels en ce sens qu'ils choisissent les situations qui correspondent pour eux à l'utilité la plus grande ; la seconde hypothèse est que l'agent individuel se comporte face à l'éducation comme un investisseur et que le marché du capital dans lequel s'effectue l'investissement remplit les conditions d'un marché concurrentiel parfait. Si l'on ajoute que la mesure de l'utilité se confond généralement avec la mesure monétaire directe, on aboutit alors à une optimisation indifférenciée de l'investissement éducatif suivant les caractéristiques propres du décideur.

En dépit des hypothèses sous-jacentes et des données utilisées qui ont nourri une abondante controverse, ces modèles sont utiles pour définir une sorte de référence, de norme qui caractériserait l'investissement optimal. Cependant, ilsne peuvent conduire qu'à un échec si on souhaite rendre compte de la réalité qui, comme nous l'avons vu précédemment, dans ce texte, se caractérise par une grande diversité. En regard de ce fait, la théorie du capital humain utilise implicitement et même explicitement parfois, l'argumentation suivant laquelle la diversité proviendrait de la répartition inégalitaire des capacités individuelles, sans d'ailleurs prendre soin de les définir. La démonstration a été faite que si cette argumentation a du vrai, elle est néanmoins insuffisante pour rendre compte convenablement de la réalité observable. C'est pourquoi, il semble opportun de faire un réexamen du modèle d'optimisation de l'investissement éducatif.

Attachons-nous tout d'abord aux hypothèses de l'analyse coûts-bénéfice classique. Traditionnellement, ce mode de calcul est fondé sur l'existence d'une décision individuelle rationnelle à partir d'une fonction unique pour la mesure de la rentabilité. La justification de cette rationalité se trouve dans l'hypothèse sous-jacente selon laquelle les individus quelles que soient leurs conditions socio-économiques d'existence, pourraient emprunter pour financer leurs études, et ceci à un taux identique donné. Cette démarche qui suppose l'existence d'un marché du capital parfait, d'une part ne correspond pas à l'organisation de nos sociétés, et d'autre part, prouve son inefficacité quant à l'explication des comportements différents des divers groupes sociaux. Comme par ailleurs, on observe sur longue période, une différentiation permanente inter-classes, même si l'intensité des inégalités a tendance à décroître, il y a tout lieu de penser que cette situation correspond à des comportements fondamentaux différenciés. Force nous est de supposer que tous les individus n'ont pas la même fonction d'utilité et/ou sont dans des situations socio-économiques telles qu'elles induisent des écarts dans la volonté éducative. L'outil coûts-bénéfices a été utilisé avec des sophistications mathématiques diverses, mais la nature de ses hypothèses a gardé, à notre sens, l'empreinte de considérations économiques strictes, et en tous cas, trop restrictives pour rendre compte convenablement de la réalité.

De façon schématique, on peut distinguer deux périodes liées au processus éducatif dans la vie d'un individu : une première période, pendant laquelle l'individu reçoit sa formation (elle se caractérise par un coût) et une seconde période au cours de laquelle il y a utilisation dans la vie active du capital acquis, (elle se caractérise par un revenu).

Ce processus peut se représenter par un graphique du type suivant :


Revenus
Coûts
0
t_A
t_B
t
valeurs courantes
valeurs actualisées
t_A = âge de sortie du processus éducatif et d'entrée dans la vie active
t_B = âge de sortie de la vie active

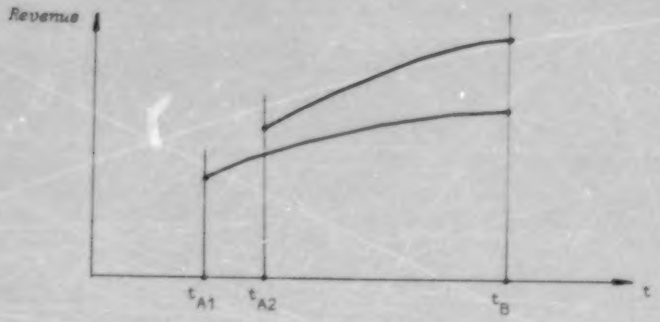
. Le coût total direct actualisé (ou taux k) d'une formation poursuivie jusqu'à l'âge t_A est :

$$Cd_0 = \int_0^{t_A} \phi_1(t) \cdot e^{-kt}\, dt \qquad \text{avec } \phi_1(t) \text{ fonction de coûts directs.}$$

soit :

$$Cd_0 = \Big[\phi_2(t)\Big]_0^{t_A} = \phi_2(t_A) - \phi_2(0) = \phi(t_A)$$

. Le modèle fait l'hypothèse qu'il existe une relation fonctionnelle entre le stock de capital humain acquis (estimé par t_A) et le profil de carrière. Cette relation définit la forme de la famille des courbes de revenus en fonction de l'âge et en fonction de la qualification au départ de la vie active (estimée par t_A)



Nous connaissons l'équation de la famille des courbes de revenus :

$$R(t) = \gamma(t_A, t)$$

. Si sur le graphique précédent t_{A1} correspond à l'âge de la scolarité obligatoire, la poursuite d'études jusqu'à l'âge t_{A2} a une conséquence triple.

Du côté des coûts directs, l'individu supportera $\int_{tA1}^{t_{A2}} \phi(t).dt$ (expression non actualisée) ; du côté des gains, il faudra attribuer au surcroît d'éducation $(t_{A2} - t_{A1})$, le surcroît de revenu correspondant :

$$\int_{t_{A1}}^{t_B} [- \gamma(t_{A1}, t) + \gamma(t_{A2}, t)] \quad d.t$$

(expression non actualisée).

Cette dernière expression fait ressortir dans la période (t_{A1}, t_{A2}) ce que les économistes ont coutume d'appeler le manque à gagner, c'est-à-dire, le coût du renoncement à un revenu professionnel du fait de la continuation de l'enseignement.

Finalement, il est possible, en prenant en compte ces différents éléments de calculer le bénéfice net actualisé de ce supplément d'éducation par rapport au minimum légalement obligatoire.

$$B_o = -\int_{t_{A1}}^{t_{A2}} \phi(t).\, e^{-kt}.\, dt + \int_{t_{A1}}^{t_B} \left[-\gamma(t_{A1}, t) + \gamma(t_{A2}, t)\right].e^{-kt}.\, dt$$

B_o peut être mis sous la forme $B_o(t_{A2})$.

La formation optimale correspond au nombre d'années d'études t_A^* qui est la valeur de t_{A2} qui rend B_o maximum.

$$t_A^* \text{ racine de : } \quad \frac{dB_o}{dt_{A2}} = 0 \quad , \quad \frac{d^2B_o}{dt_{A_2}^2} < 0$$

Ce modèle reprend le schéma classique d'optimisation de l'investissement éducatif. Il se caractérise par l'unicité de l'optimum quelles que soient les caractéristiques individuelles du décideur et par conséquent, ne se prête pas à expliquer la grande diversité qu'on observe. En fait, son inefficacité provient d'une part, de l'hypothèse de concurrence et de celle de l'existence d'un marché du capital parfait, mais aussi d'autre part, du fait que l'on raisonne sur des moyennes, alors que la dispersion est grande autour de ces valeurs centrales et que ces chiffres cachent des situations différenciées. C'est à partir de cette réflexion banale qu'il est possible d'apporter des critiques à la théorie traditionnelle et de proposer un modèle susceptible de rendre compte des faits.

Examinons tout d'abord les faiblesses de la construction en nous attachant en premier lieu, à l'observation des coûts et des revenus, après quoi nous chercherons à définir les arguments de la fonction d'utilité individuelle qui absorbe ces éléments dans la décision éducative.

II.2.1. L'ambiguité relative aux définitions des coûts et revenus de l'éducation

A. La fonction des coûts de l'éducation : l'observation des dépenses divisibles effectuées par les familles pour leurs enfants laisse apparaître les dépenses de trois types.

- Des dépenses qui correspondent au coût de la croissance d'un enfant en dehors de toute hypothèse éducative. C'est ce que certains auteurs appellent le *coût de l'homme.*

- Des coûts d'éducation au sens strict. Ce sont les dépenses de scolarité ou celles directement induites par la fréquentation scolaire. L'accord semble également se faire pour intégrer, dans cette catégorie, les dépenses différentielles entre celles qu'on observe et celles que l'on observerait si l'enfant n'était pas scolarisé. (l'exemple le plus classique est bien évidemment celui du service d'hotellerie fourni par les établissements).

- Des coûts d'activités socio-éducatives. Ce point donne lieu à de nombreuses controverses. En effet, faut-il ou non les inclure dans les dépenses éducatives ? Les partisans d'une réponse négative partent d'une conception étroite de l'éducation. Pour eux, le caractère non obligatoire de ces dépenses les fait sortir du cadre éducatif. A l'opposé, les partisans d'une réponse positive se fondent sur des études pédagogiques qui indiquent que le développement intellectuel d'un enfant peut se completer (ou se faire) dans des manifestations non liées au système éducatif formel.

Or, si les coûts stricts d'éducation ne sont pas identiques pour les différents types de familles, les écarts sont beaucoup plus marqués encore en ce qui concerne les activités socio-culturelles. On peut alors penser qu'il existe deux types d'investissement en capital humain suivant le mode d'acquisition. Il serait dans ce cas, important de mesurer leur rentabilité propre et d'évaluer dans quelle mesure ces investissements sont substituables ou bien complémentaires. L'effet socio-culturel, bien qu'il se situe dans le domaine des petites différences, peut néanmoins avoir un impact important sur la scolarité, comme il a été montré précédemment à partir des résultats de l'étude d'ALEXANDER (1).

Le tableau de la page suivante donne (2) des valeurs des dépenses strictes d'enseignement ainsi que celles affectées à des activités socio-éducatives, pour différentes catégories sociales à plusieurs niveaux d'éducation (soit y_1 le coût strict d'enseignement et y_2 celui des activités socio-culturelles).

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(1) En fait, dans une optique décisionnelle, les coûts stricts d'éducation et les coûts socio-culturels ne sont pas de même nature. Les premiers sont subis par les familles et ils entrent directement dans le processus de choix, alors que les seconds semblent en être issus. C'est parce que telle famille choisit pour ses enfants tel type de scolarisation qu'elle veut se donner les moyens de sa politique en se conformant au modèle culturel qui correspond à sa visée.

(2) Ces chiffres sont issus de l'enquête IREDU (1972) - A. MINGAT, J.M. CARRE et J.J. FRIBOULET - *Les coûts de l'éducation à la charge des familles*- Cahier de l'IREDU - n° 10 - 1974.

CATEGORIE SOCIO-PROFESSIONNELLE		AGRICULTEURS	OUVRIERS	EMPLOYES	ARTISANS COMMERCANTS	CADRES MOYENS	CAD. SUPER. PROF. LIBER.
Type de Coûts	Niveau d'éducation						
Y₁	*Primaire*	185	155	130	140	245	240
	Secondaire 1 er cycle 6ème-5ème - type 1 *	605	420	345	385	360	400
	Secondaire 1 er cycle 6ème-5ème - type 3 *	-	215	270	-	-	-
	Collège d'enseignement technique *	985	805	685	955	700	-
	Lycée classique et moderne *	830	670	670	855	600	675
Y₂	*Primaire*	145	50	75	140	130	285
	Secondaire 1 er cycle 6ème-5ème - type 1 *	145	95	135	315	245	410
	Secondaire 1 er cycle 6ème-5ème - type 3 *	-	90	95	-	-	-
	Collège d'enseignement technique *	215	145	125	275	210	-
	Lycée classique et moderne *	340	160	160	350	450	710

* La filière secondaire type 1 correspond à la filière noble qui conduit au baccalauréat. Au contraire, le type 3, dit de transition, conduit à l'enseignement professionnel court.

Dans le second cycle, le Collège d'Enseignement Technique (C.E.T.) est un enseignement professionnel court, alors que le lycée classique et moderne prépare directement le baccalauréat.

Les chiffres présentés page précédente, correspondent, pour l'année 1972, à des estimations des coûts supportés par les familles, avant transferts. En ce qui concerne Y_1, ils représentent, pour une faible part, une volonté parentale (notamment pour les fournitures), mais sont majoritairement liées à la filière suivie et à des contraintes issues de l'offre d'éducation. Celle-ci véhicule des inégalités du fait par exemple de la localisation urbaine des établissements secondaires du 2 ème cycle, ce qui induit des coûts plus élevés pour les ruraux.

Les coûts des activités socio-éducatives sont marqués par de grandes différentiations de deux types. Le premier intéresse la très forte inégalité entre les catégories sociales pour un même niveau et pour une même filière scolaire. Ainsi, au lycée classique et moderne, ces dépenses varient de 160 F à 710 F suivant que les parents sont ouvriers ou bien cadres supérieurs. Il est d'ailleurs à noter que ces activités de développement individuel, menées de façon parallèle à l'école, sont déjà très différenciées dès le très jeune âge (dans le primaire, les chiffres respectifs sont 50 F et 285 F).

Le second type d'écarts qui ressort du tableau précédent est que, pour un même niveau d'âge et d'enseignement et pour une même catégorie socio-professionnelle, il y a un effet de filière assez important. Ainsi, dans le second cycle de l'enseignement secondaire, les dépenses Y_2 des cadres moyens varient de 210 F à 450 F suivant que l'enfant est scolarisé dans l'enseignement professionnel court ou dans l'enseignement général long. Deux facteurs peuvent ici intervenir : d'une part, il peut y avoir un effet de filière strict, c'est-à-dire, un effet d'imitation de la catégorie sociale dominante dans ce type d'enseignement et d'autre part, il faut noter que la classification en catégories socio-professionnelles, si elle est pratique, conduit à mutiler la réalité faite d'une plus grande diversité individuelle. Il est vraisemblable en effet, qu'au sein d'une même catégorie statistique, les familles qui scolarisent leurs enfants dans une filière courte, ne sont pas parfaitement semblables à celles qui choisissent des études longues.

En ce qui concerne Y_2, une différentiation très importante ne ressort pas directement du tableau présenté. Il s'agit de l'introduction d'une variable supplémentaire : la taille de la famille. On observe une décroissance rapide du volume de ces dépenses, alors que la taille de la famille est plus grande. A des degrés divers, ce phénomène affecte l'ensemble des filières éducatives et des catégories sociales. Ainsi, en moyenne, le coût Y_2 dans la filière 6ème-5ème-type 1 passe de 214 F pour les familles de 1 ou 2 enfants, à 126 F pour les familles de 5 enfants et plus, avec une décroissance continue entre ces deux extrêmes.

Au-delà de ces coûts bruts, qui marquent des écarts importants, il faudrait se poser la question de savoir ce qui reste effectivement à la charge des familles après transferts. Ce problème sera évoqué plus longuement dans la deuxième partie de ce rapport, mais on peut déjà mentionner ici les différents types de transfert qui sont effectués en France par l'intermédiaire de l'éducation.

Il y a d'abord les aides directement destinées à alléger la dépense d'éducation. Elles sont de deux sortes : les aides en espèces - bourses et salaires étudiants - et les aides en nature - subventions aux restaurants universitaires et aux logements étudiants -. Les premières varient selon l'origine sociale de l'étudiant et la filière suivie, les secondes sont par nature, égales pour tous les usagers (1). De façon détournée, deux autres voies de transfert sont possibles. Elles se limitent à la période post scolarité obligatoire, mais elles correspondent à des valeurs monétaires suffisamment importantes pour qu'il ne soit pas permis de les ignorer. Il s'agit des allocations familiales qui ne sont maintenues (jusqu'à 20 ans) que dans la mesure où l'enfant n'a pas mis un terme à sa scolarité pour entrer dans la vie active. Il s'agit aussi du manque à payer fiscal du fait que la famille conserve une demi-part dans le calcul du quotient de revenu tant que l'enfant est scolarisé (âge limite 25 ans), ce qui a pour conséquence de minorer l'impôt payé par la famille. La différence entre l'impôt payé effectivement et l'impôt qui aurait été payé en l'absence de scolarisation d'un enfant est alors considérée comme une aide individuelle affectée à l'éducation. Le mode d'action de ce *transfert* est d'assurer aux familles, une aide d'autant plus importante que les revenus sont élevés.

Les chiffres que nous présenterons plus loin montrent l'ampleur du phénomène de redistribution et à quel point les coûts réellement supportés, les seuls intéressants dans une optique décisionnelle, sont parfois différents, non seulement des dépenses mais des coûts apparents, c'est-à-dire calculés avant transfert.

B. Le fonction des revenus des individus éduqués

Le problème à ce niveau est de savoir quels sont les facteurs qui concourrent à la détermination du revenu dont un individu est titulaire à un instant donné. La possession d'un diplôme est sans doute, avec l'âge du titulaire du revenu, un facteur très important. On observe en effet qu'en moyenne, pour chacune des tranches d'âge, la hiérarchie du salaire reflète celle du diplôme (1). Cependant, deux éléments doivent être pris en compte de façon complémentaire, pour analyser ces résultats. Il s'agit en premier lieu de l'aptitude ou des qualités individuelles, il s'agit en second lieu, des différences inter catégories sociales pour la possession du même stock d'éducation formelle.

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(1) Mais pas pour tous les étudiants dans la mesure où les taux d'utilisation varient. Ainsi, ceux dont les parents habitent la ville universitaire bénéficient moins de ces services.

Les aptitudes expliquent une part, relativement faible, des différences de revenus, pour un même diplôme, mais sont aussi à l'origine des écarts de revenus entre possesseurs de diplômes différents. Dans une certaine mesure, les qualités individuelles surtout pour les classes sociales favorisées, décident de la possibilité donnée à un enfant de poursuivre ses études ; ce qui fait que pour une même classe sociale et toutes choses égales d'ailleurs, les enfants qui poursuivent des études sont en moyenne, doués de qualités supérieures à ceux qui ont dû interrompre les leurs. Par conséquent, les différences dans les revenus observés s'expliquent pour partie par des qualités en moyenne différentes. Cependant, ce facteur même s'il semble être plus important dans les catégories sociales qui ont la plus forte demande d'éducation, n'est pas à lui seul, susceptible d'introduire un biais important quant aux inégalités inter-classes. Notons tout de même à titre d'introduction au point précédent, que ce facteur devrait avoir pour conséquence, de faire apparaître à niveau d'éducation donné, des revenus plus importants pour les catégories modestes, si l'éducation et les aptitudes étaient avec l'âge, les seuls facteurs déterminant le revenu.

La réalité montre qu'il en est autrement, et que l'origine sociale a une importance relativement grande sur le salaire. Que la raison soit comme le suggère BOWLES ou GINTIS (2) dans l'existence d'un facteur invisible qui caractériserait les attitudes et la faculté à se mouler dans la société hiérarchique ou plus simplement, dans le népotisme, force nous est de constater que pour un même diplôme et pour une même classe d'âge, le revenu observé est d'autant plus élevé qu'on s'élève dans la hiérarchie sociale du milieu d'origine.

Le tableau de la page suivante, tiré de l'étude de L. LEVY-GARBOUA, illustre cette différenciation.

Les différences sont importantes, en dépit du caractère grossier de la classification. En effet, le regroupement des origines employé - cadre moyen - cadre supérieur - profession libérale - est à même de cacher des écarts plus grands encore.

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(1) L. LEVY-GARBOUA - *Les profils age-gains correspondant à quelques formations type en France.* C.R.E.D.O.C. 1973.

(2) BOWLES (S) - *Understanding unequal economic opportunity : the role of schooling I.Q. and family economic status* - American Economics Association - Toronto décembre 1972.

GINTIS (M) - *Education, technology and the characteristics of worker productivity* - American Economic Review - mai 1971

. SALAIRES OBSERVES EN 1970 CORRESPONDANT A QUELQUES FORMATIONS SUIVANT LE MILIEU SOCIAL D'ORIGINE - CLASSE D'AGE 40 - 44 ANS (hommes)

Milieu d'origine Diplôme	milieu agricole	milieu ouvrier	milieu indépend.cols blancs
Sans diplôme ni apprentissage sur le tas	*12 150*	*14 190*	*16 680*
C.E.P. Sans apprentissage sur le tas	*15 430*	*16 360*	*18 430*
Secondaire technique court	*20 810*	*21 730*	*22 420*
Secondaire bac général 2è part.	-	*32 340*	*44540*

La conclusion est que la fonction du revenu moyen n'est pas identique pour les différents groupes sociaux. Cependant, le caractère inégalitaire s'observe à chacun des niveaux si bien que ce phénomène ne permet pas à lui seul d'expliquer les différences de scolarisation des différentes catégories sociales. La recherche de la raison de l'inégalité d'accès doit donc être cherchée au niveau de la fonction d'utilité qui intègre les éléments à la disposition de l'individu dans le processus de choix.

II.2.2. Prise en compte des caractéristiques individuelles du décideur

La démarche suivie est de supposer que les familles sont des agents économiques rationnels qui visent à obtenir pour leurs enfants, les scolarisations les meilleures dans le cadre des contraintes qu'elles doivent assumer. Les deux arguments qui différencient les familles sont essentiellement au nombre de deux : il s'agit en premier lieu, de la prise en compte dans le temps, des coûts et des bénéfices, et en second lieu de la prise en compte du risque associé à cette décision. Nous examinerons successivement ces deux points avant de présenter le modèle.

A. Introduction du prix du temps - choix d'un taux d'actualisation

Le modèle classique retenait un taux d'actualisation unique, égal au taux du marché, ce qui revenait à supposer que le marché du capital était parfait. En fait, les conditions socio-économiques des familles les placent dans des positions différentes par rapport au marché des capitaux (1). Ainsi, suivant qu'une famille se trouve dans une position d'emprunteur net ou de prêteur net, que les taux sont supérieurs à ceux de prêt, il s'ensuit que les caractéristiques familiales auront une influence primordiale dans la détermination du taux d'actualisation retenu dans la mesure de la rentabilité de l'investissement éducatif. De plus, le taux d'emprunt auquel la famille pourrait trouver des liquidités pour financer les études de ses enfants sera d'autant plus élevé que le risque de non remboursement sera perçu comme important par le prêteur ; par conséquent, le coût du capital sera d'autant plus élevé que les flux financiers de la famille et que les garanties patrimoniales qu'elle pourra présenter, seront faibles.

i) Du fait de la décroissance de l'utilité marginale de la monnaie, on peut penser que le taux d'actualisation retenu suit une fonction décroissante du quotient familial de revenu ou d'un indicateur de revenu prenant en compte les charges de la famille. A titre d'exemple, il est clair qu'une famille nombreuse dont les revenus sont modestes préférera que l'aîné des enfants entre rapidement dans la vie active, même si elle pense que les capacités intellectuelles de cet enfant sont compatibles avec des études longues. Une famille comparable avec des revenus supérieurs, ou une famille n'ayant qu'un seul enfant avec des des revenus égaux n'aurait certainement pas accordé la même importance au temps présent. Il s'agit ici d'une valuation psychologique de coûts économiques qui diffèrent très fortement suivant les conditions socio-économiques du décideur.

ii) A côté du revenu, il est à penser que le patrimoine a également une influence sur les comportements familiaux. En ce qui concerne le patrimoine financier, on peut anticiper que le taux d'actualisation retenu devrait décroître alors que le stock-propriété de la famille augmente. Cependant, ce premier effet d'incitation à la scolarisation des familles possédantes est vraisemblablement plus faible qu'on pourrait le penser en première analyse. L'argument est qu'une activité économique transmissible, ne requerrant pas un stock d'éducation important, constitue un frein à la poursuite d'études longues. Pourquoi en effet, investir dans une qualification qui ne serait en tout état de cause, pas utilisée ?

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(1) Ce point, déjà mentionné par A. MARSHALL (Principles, livre 6, chap.4), est retenu par G. BECKER (Human Capital puis WOYTINSKI lecture) et repris par M. BLAUG (introduction to the economics of education p. 173).

Toutefois, cet argument ne conserve une valeur que pour les familles peu nombreuses d'exploitants agricoles, d'artisans ou de commerçants.

Après cette rapide réflexion, quant aux raisons objectives qu'ont les familles de choisir un taux d'actualisation propre à leurs conditions socio-économiques, il faut aborder une autre critique du modèle traditionnel, à savoir qu'il raisonne sur des moyennes dans une situation de certitude.

B. Une situation d'incertitude

Nous laisserons ici de côté le problème lié au mode transversal d'observation des coûts et des revenus en faisant l'hypothèse que les individus ne font pas d'anticipation sur la structure future de la rémunération des diplômés, bien qu'il soit suffisamment certain qu'on assistera dans les prochaines décennies à de profondes transformations qui invalideront cette supposition de stabilité. Nous resterons par conséquent dans le cadre de la situation qu'on peut aujourd'hui observer quant aux coûts d'acquisition des diplômes et aux revenus des individus qui en sont titulaires.

L'incertitude relative aux conséquences d'une décision éducative comporte deux aspects complémentaires : en premier lieu, il y a incertitude à l'intérieur de l'éducation elle-même, du fait de la réussite non assurée, et en second lieu, il y a incertitude au niveau de l'emploi occupé dans la vie active et des rémunérations qui y sont attachées. Considérons successivement ces deux niveaux avec un peu plus de détail.

En ce qui concerne la filière éducative, le modèle du capital humain a été élaboré dans un pays où le mot de redoublement n'appartient pas au langage pédagogique, si bien que transposé au cas de la France, il correspondrait au cas idéal dans lequel la scolarité se ferait sans accroc. Dans certaines filières, ce cas est loin de constituer la moyenne ni même le mode. Par conséquent, l'hypothèse théorique s'accorde si peu à l'observation qu'il nous faut la remettre en cause, et ceci d'autant plus que les taux d'échec et de redoublement sont très variables suivant la filière choisie et le niveau visé. Ainsi les taux d'échec et de redoublement au niveau de l'enseignement supérieur sont extrêmement différents suivant que l'on considère une filière courte type I.U.T. ou une filière longue, type faculté ou bien encore si l'on vise à entrer dans une grande école. Il est très vraisemblable que les familles prennent en compte cet élément-risque pour évaluer les différentes potentialités éducatives et par conséquent, pour établir leur choix (1). En outre, il faut considérer qu'une filière est constituée de plusieurs maillons successifs et il est alors important d'introduire le risque associé au passage entre les différents maillons d'une même voie éducative. Ainsi, l'entrée dans une classe de préparation aux grandes écoles porte en elle le risque lié au passage du concours.

A l'issue de la scolarité, l'individu occupe un emploi qui est en moyenne d'autant plus rémunéré que la période éducative a été longue. Cependant, et cette critique vaut autant pour les Etats-Unis que pour la France, il y a une très grande indétermination *ex ante* du niveau de revenu associé à une formation. Les tests de la théorie du capital humain accordent généralement moins de 40 % quant à l'explication de la variance du revenu individuel par le diplôme possédé. Ce chiffre atteste de la grande plage de variation autour des moyennes qui sont habituellement utilisées. Il y a donc lieu de considérer le risque de chômage et de sous-qualification, mais il faut aussi introduire, dans un sens différent de celui de G. BECKER, le caractère de spécificité de la formation reçue. Ainsi, une éducation qui peut conduire à plusieurs métiers alternatifs sera de ce point de vue, et toutes choses égales d'ailleurs, moins risquée qu'une formation qui ne débouche que sur un emploi très spécialisé. A cause du changement potentiel, plus ou moins important du contenu des métiers, une formation générale, ou une formation donnant à l'individu une grande capacité d'adaptation sera à un niveau de risque plus faible.

Le problème est maintenant d'intégrer ces différents éléments dans un modèle décisionnel qui définirait pour une famille caractérisée par ses conditions socio-économiques quelles sont les formations les meilleures de son point de vue.

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(1) On se souviendra des problèmes posés par le redoublement quant à la reconduction des bourses. Il est donc clair qu'une famille de condition modeste dont les enfants sont titulaires de bourses appréciera fortement le risque associé au redoublement.

II.2.3. Le modèle de la décision individuelle

Le modèle initial s'écrivait :

$$\text{Max.}\left[B_o = - \int_{t_{A1}}^{t_{A2}} \phi(t).e^{-kt}dt + \int_{t_{A1}}^{t_B} \left[- \gamma(t_{A1}, t) + \gamma(t_{A2}, t)\right] .e^{-kt}. dt \right]$$

Les aménagements apportés à ce cadre concernent d'une part le calcul du bénéfice actualisé et d'autre part le risque lié à l'investissement éducatif.

La valeur actuelle des flux de coûts et de revenus est calculée en comptabilisant les coûts correspondant à une scolarité *normale* donc sans redoublement ni changement d'orientation, et en prenant compte des profils âge-gains moyens pour le diplôme visé.

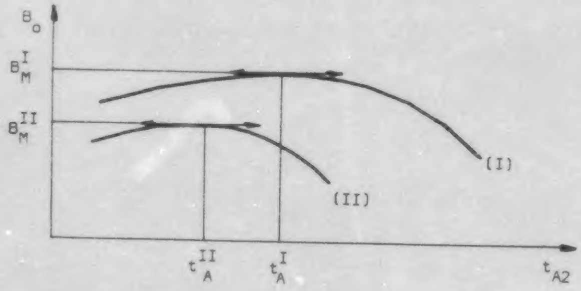
Soit i un indice caractérisant la famille ; le modèle se récrit alors :

$$\text{Max}\left\{ B_o = - \int_{t_{A1}}^{t_{A2}} \phi_i(t)\ e^{-k_i t}.dt + \int_{t_{A1}}^{t_B} \left[-\gamma_i(t_{A1},t) + \gamma_i(t_{A2},t)\right] .e^{-k_i t}. dt \right\}$$

Considérons la fonction B_o pour un type de formation et pour deux types de familles.

	Famille type 1 -Aisée	Famille type 2 - modeste
Taux d'actualisation retenu	k_1	k_2
Fonction de coûts	ϕ_1	ϕ_2
Fonction de revenus	γ_1	γ_2

Les courbes B_o, en fonction de t_A, prennent alors les formes suivantes. On ne peut démontrer rigoureusement que B_M^I est supérieur à B_M^{II}, ni que t_A^I est supérieur à t_A^{II} du fait que les fonctions de coûts et de revenus ne sont pas les mêmes pour les deux types de familles. Par contre, la démonstration est évidente si $\phi_1 = \phi_2$, si $\gamma_1 = \gamma_2$ et si $k_2 > k_1$, du fait de la répartition temporelle des coûts et des revenus.



Cette valeur actuelle est en fait la moyenne de la variable aléatoire B_o calculée dans le cas restrictif de la scolarité normale, ou plutôt optimale. La prise en compte du risque peut s'opérer par l'introduction de la variabilité de la fonction de revenu d'une part, et par la probabilité d'avoir des accidents en cours d'études d'autre part.

Dans une première étape, on peut prendre en considération seulement la dispersion des coûts et des revenus et calculer la variable aléatoire (B_{oij}, τ_{ij}) pour une famille i visant la formation j. Pour tenir compte des échecs et des redoublements (qui ne sont pas répartis de façon aléatoire dans les différentes classes sociales et les différentes filières), on peut chercher à estimer une nouvelle variable aléatoire B_{oij}^{-}.

Si nous connaissons les taux de redoublement pour une famille i et pour une formation j, nous pouvons facilement introduire ce risque en déterminant la transformation de la fonction de répartition induite par le redoublement.

Si N_{ij} est l'effectif de la classe i, s'engageant dans la formation j et si les cursus éducatifs se répartissent comme suit (1) :

- N_{1ij} = effectif qui effectue une scolarité normale,
- N_{2ij} = effectif qui termine sa scolarité avec un redoublement,
- N_{3ij} = effectif qui termine sa scolarité avec deux redoublements,
- N_{4ij} = effectif qui subit un échec,

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(1) Il s'agit d'une simplification dans le but de clarifier la présentation.

avec :

$$N_{ij} = N_{1ij} + N_{2ij} + N_{3ij} + N_{4ij}$$

La fonction de bénéfice net actualisé pour la famille i et pour la formation j est alors composée de la manière suivante : (les fréquences observées sont supposées être des estimateurs des probabilités ex-ante affectées à chaque possibilité).

$$\tilde{B}_{oij} = \frac{N_{1ij}}{N_{ij}} . \tilde{B}_{oij}^{1} + \frac{N_{2ij}}{N_{ij}} . \tilde{B}_{oij}^{2} + \frac{N_{3ij}}{N_{ij}} . \tilde{B}_{oij}^{3} + \frac{N_{4ij}}{N_{ij}} . \tilde{B}_{oij}^{4}$$

. $\tilde{B}_{oij}^{1}$ = variable aléatoire, bénéfice net actualisé-cursus normal.

. $\tilde{B}_{oij}^{2}$ = variable aléatoire, bénéfice net actualisé avec un redoublement, c'est-à-dire, une année supplémentaire de coûts et entrée dans la vie active une année plus tard.

. $\tilde{B}_{oij}^{3}$ = variable aléatoire, bénéfice net actualisé avec deux redoublements c'est-à-dire deux années supplémentaires pour les coûts et entrée dans la vie active deux années plus tard.

. $\tilde{B}_{oij}^{4}$ = variable aléatoire, bénéfice net actualisé en cas d'échec.

Un problème particulier se pose pour la mesure de $\tilde{B}_{oij}^{4}$. En effet, il faut savoir après combien d'années en moyenne se situe l'échec pour pouvoir imputer les coûts correspondants. De plus, la connaissance de ce que font les individus suite à l'échec est indispensable. Deux hypothèses dont il conviendra de mesurer les fréquences respectives sont possibles : entrée directe dans la vie active ou reprise d'études dans une filière généralement plus courte et à tendance plus pratique.

Dans le cas d'entrée dans la vie active, on pourra imputer, sur une période amputée des années perdues, le profil de revenu correspondant à la qualification détenue avant l'entrée dans la filière j. Dans le cas de *recyclage* on pourra imputer les coûts propres à cette nouvelle formation, ainsi que le profil de revenu associé sur une période amputée des années perdues. Le calcul de $\tilde{B}_{oij}^{4}$, s'il est assez délicat, devra néanmoins être mené avec d'autant plus de soins que pour certaines filières, la part d'individus dans ce cas (N_{4ij}/N_{ij}) est importante.

Il est donc possible, sinon facile, de déterminer la fonction de répartition $\tilde{B}_{oij}$ sachant qu'elle regroupe en elle-même l'essentiel des informations concernant l'investissement éducatif.

Le problème est maintenant de caractériser cette distribution et d'étudier de quelle façon les individus y sont sensibles. Le premier paramètre que nous utilisons est la valeur calculée à partir de la moyenne des coûts et revenus correspondant à un cursus éducatif normal. Le second paramètre doit caractériser la dispersion et la forme de la distribution et en particulier, le risque d'obtenir moins que le revenu espéré dans des conditions normales. Le moment d'ordre 2 centré sur cette valeur donne des indications sur la dispersion absolue, mais ne prend pas en compte la forme de la distribution. Le moment d'ordre 3, s'il précise mieux la dissymétrie de la fonction masque l'importance de la dispersion. Il apparaît qu'il serait plus satisfaisant, dans un esprit comparable à celui de la critique de W. BAUMOL (1) au modèle espérance variance d'utiliser un seuil minimal caractérisé par une fraction de la valeur moyenne dans le cas de la scolarité normale avec la probabilité que le revenu observé soit inférieur à ce seuil. Soit α_{ij} le risque associé à la formation j pour une famille i.

$$\alpha_{ij} = \text{Prob}\ \left[B_{oij} < \lambda B_{oij}\ \text{moyen-scolarité normale}\right]$$

avec $\lambda = 0{,}8$ par exemple.

α_{ij} estimateur du risque, exprime donc la probabilité que le bénéfice net actualisé associé à une formation soit inférieur à 80 % de la valeur visée.

Il nous faut maintenant optimiser la fonction individuelle d'utilité, sachant que les familles cherchent à obtenir un bénéfice net actualisé le plus important possible avec le minimum du risque.

A chacune des formations potentielles correspond une fonction de distribution du bénéfice net actualisé, une espérance de revenu pour un cursus éducatif normal et un risque associé x_j ; ceci pour chacun des types i de familles. Nous pouvons représenter ces deux éléments dans un système de coordonnées rectangulaires.

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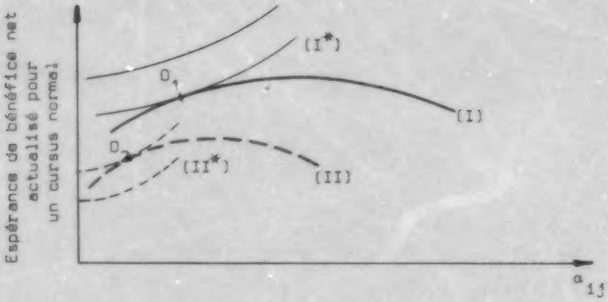
(1) BAUMOL (W) - *An expected gain confidence limit criterion for portfolio sélection* - Management Science - Vol. 10, n° 1, octobre 1963.



Les courbes espérance de bénéfice net actualisé pour un cursus normal, risque associé pour différentes formations et pour une famille i (courbes I et II), ont la forme générale représentée ci-dessus eu égard au fait que les échecs et les abandons sont plus nombreux au fur et à mesure que les études sont plus longues et que la dispersion des revenus est d'autant plus forte que le diplôme possédé est élevé.

Nous avons représenté dans le même système d'axes les courbes d'indifférence des familles I et II, $[I^*$ et $II^*]$ pour pouvoir repérer leurs préférences. Les concavités des courbes d'indifférence sont également fonction des caractéristiques familiales. Ainsi, la prime de risque exigée par la famille modeste (II) est très supérieure à celle exigée par la famille aisée (I).

Nous pouvons donc déterminer quels sont les points qui optimisent l'utilité des familles considérées (O_1 et O_2 sur le graphique) et par là même quelles sont les formations qui sont reconnues optimales.

Nous pouvons formaliser ce problème de maximisation suivant deux variables, au prix d'une simplification sur la forme des courbes d'indifférence, de la façon suivante :

Les objectifs de l'investisseur sont de déterminer les carrières qui conduisent à l'espérance de profit la plus importante pour un cursus éducatif normal, mais qui représentent une sécurité maximale ou un risque minimum. Soit μ_i, la pente des courbes d'indifférence supposée constante, μ_i représente l'aversion pour le risque ou la prime de risque exigée par l'investisseur pour accepter une unité de risque supplémentaire. Ainsi, μ sera plus élevé pour une famille modeste que pour une famille aisée.

L'équation de la famille des courbes d'indifférence ou des droites à utilité constante est :

$$U_i = E_{ij} - \mu_i . \alpha_{ij} .$$

U_i est un indicateur global de l'utilité associée à une formation j, $[E_{ij}, \alpha_{ij}]$ pour une famille i.

Il est alors aisé de déterminer les formations jugées optimales. Pour une famille i, elle est donnée par la résolution de $\frac{dU_i}{dt_A} = 0$, sous la condition seconde $\frac{d^2U_i}{dt^2_A} < 0$.

Ce modèle permet donc d'évaluer les formations les plus utiles pour des catégories socio-familiales différentes. Cependant, il ne saurait s'agir là d'une justification de justice. En effet, les formations définies sont des adaptations optimales en fonction de conditions individuelles qui sont inégalitaires. Si l'un des objectifs du planificateur est de réaliser l'égalité des chances quant à l'accès à l'éducation, cette situation ne correspond donc pas à la meilleure au plan de l'utilité collective. La conséquence en est que dans une certaine mesure, il y a reproduction de la structure sociale par l'éducation entre générations successives.

La question est alors de savoir jusqu'où et comment l'éducation opère ce rôle. Nous ne ferons ici qu'effleurer ce problème à l'occasion de l'examen de l'utilité du modèl[illegible]écédent, pour rendre compte de la structure des scolarisations en France, soit à un instant donné, soit au niveau de l'évolution dans le temps.

. De façon transversale, le modèle s'accorde avec l'essentiel de l'information issue des statistiques scolaires.

- les formations finales sont d'autant plus courtes que le niveau social (économique + culturel) est bas. En effet, le coût du renoncement à une activité rémunérée est perçu comme beaucoup plus élevé pour une famille modeste que pour une famille aisée.
- A niveau social donné, le choix pour des études longues est d'autant moins fréquent, que le nombre d'enfants de la famille est élevé. Ainsi, à l'entrée en 6 ème, les taux d'entrée au lycée passent de 20 % à 10 %, chez les fils d'ouvriers suivant qu'il s'agit de familles peu nombreuses ou de familles nombreuses. Ces écarts se retrouvent dans les autres catégories sociales et la décroissance du Q.I. moyen avec la taille de la famille (et le rang dans la fratrie) ne fournit pas une explication suffisante, surtout chez les familles modestes.
- A un point de birfucation du cursus éducatif, les études courtes sont choisies de façon d'autant plus fréquente , que la réussite est moins bonne et le retard

scolaire plus grand. Deux phénomènes concourrent à l'explication de l'existence de ce fait et à son intensité inégale dans les différentes classes. En premier lieu, il s'agit de la possibilité de redoublement et d'échec qui est perçu de façon plus probable quand la scolarité antérieure n'a pas été excellente. En second lieu, il s'agit du rôle joué par des limites légales telles que la scolarité obligatoire ou la suppression des allocations familiales à 20 ans, dans la définition des coûts et en particulier, du manque à gagner. Prenons ici un exemple pour illustrer le mode d'action de ces limites. Supposons qu'à l'issue de l'enseignement primaire x et y ont des caractéristiques semblables si ce n'est qu'x a 10 ans et qu'y a 14 ans. Outre l'information sur les capacités individuelles représentée par l'âge, le choix d'une filière lycée conduit, s'il n'y a pas d'accroc, x au bac à 17 ans et y à 21 ans pour le même diplôme. La conséquence de ce choix est qu'x n'aura qu'une année de manque à gagner alors qu'y en aura 5. De plus, y se verra supprimer les allocations familiales en dernière année d'étude. Par conséquent, l'estimation des coûts et des risques encourus permet d'expliquer cette structure de choix et son intensité inégale dans les différentes classes sociales du fait d'une inégale comptabilisation des coûts et d'une moindre aversion pour le risque.

Notre propos n'est pas ici de dresser un catalogue des particularités des procédures de choix, notons seulement que des propositions aussi simples que celles formulées dans le modèle permettent de rendre compte de l'essentiel des structures de scolarisation et de décision dans le système éducatif. Examinons maintenant son aptitude à s'insérer dans l'évolution dans le temps des probabilités d'accès aux différents niveaux d'enseignement.

La structure longitudinale des scolarisations laisse apparaître deux phénomènes majeurs. Le premier est l'augmentation continue du nombre moyen d'années d'études dans le temps, le second est la persistance d'un écart entre les différentes classes sociales, venant contredire l'hypothèse selon laquelle le développement de l'éducation contribuerait puissamment à réduire les inégalités.

Le premier phénomène a été mis en évidence de nombreuses fois. Citons l'étude de DEBEAUVAIS et MAES qui fournit des chiffres sur longue période (1).

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(1) DEBEAUVAIS (M) et MAES (P) - *Une méthode de calcul du stock d'enseignement* - Population - mai-juin 1966.

	1 840	1 875	1 900	1 920	1 940	1 950	1 960
Durée moyenne des études (année)	5,61	7,36	8,20	8,79	10,39	11,17	12,33

Le second phénomène indique que si on regarde un cycle d'enseignement, on observe dans le temps une démocratisation qui est d'autant plus complète qu'il s'agit d'un niveau peu élevé mais qui est réelle même au niveau supérieur.

Pour l'entrée en 6ème, les taux qui avaient augmenté à un rythme relativement lent avant 1940, ont connu une forte augmentation pour les générations d'après guerre. Sur l'ensemble de la population, ils passaient de 4,3 % en 1936 à 9,7 % en 1948, 49 % en 1960 et 55 % en 1962. Cette progression s'est faite essentiellement au profit des classes moyennes et basses, lesclasses élevées ayant déjà auparavant des taux proches de l'unité.

TAUX D'ENTREE EN 6 ème - 1953 - 1962 (1)

CATEGORIE SOCIALE	Octobre 1953 (%)	septembre 1972 (%)
Salariés agricoles	13	32
Agriculteurs	16	40
Ouvriers	21	45
Employés	45	67
Artisans Commerçants	39	66
Cadres moyens	81	84
Professions libérales	87	93
Cadres supérieurs	86	94

Si l'on considère ce niveau d'enseignement, il y a démocratisation. Cependant, au plan global il n'y a pas d'évidence pour que l'inégalité ait diminué. En effet, d'une part, la sélection s'est opérée à un niveau plus élevé et d'autre part, il y a différenciation au sein d'un même niveau entre des enseignements inégaux en termes de qualité et de conditions d'accès. Ce qui est vrai pour l'entrée en 6 ème avec la séparation C.E.G. - lycée l'est aussi pour l'enseignement supérieur entre les I.U.T. les facultés d'accès libres, les facult-s avec numerus clausus (médecin) et les écoles (deux années de préparation et concours très sévère).

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(1) GIRARD (A), BASTIDE (M) et POURCHER (G) - *Enquête nationale sur l'entrée en 6 ème et la démocratisation de l'enseignement* - Population - 1963

Le modèle permet de comprendre comment les familles s'adaptent au système éducatif et à ses transformations, mais son pronostic en matière d'inégalités est banal : les individus dont les conditions économiques s'améliorent dans le temps, demandent plus d'éducation, mais le système s'adapte à ces transformations si bien que l'inégalité, si elle se réduit, demeure néanmoins très forte. Dans la mesure où un des rôles de l'éducation est de sélectionner les individus, l'inégalité restera présente ; la société s'est jusqu'à présent toujours arrangée pour reconnaître les élus dans les classes favorisées puisque une sélection plus difficile les avantage toujours de fait.

II . L'EGALITE PAR L'EDUCATION ?

Les inégalités devant l'éducation que l'on observe sont d'autant plus graves que l'éducation procure à ceux qui l'ont acquise une position avantageuse dans la société. Mais elles peuvent être atténuées par les transferts publics liés à l'enseignement. Autrement dit, deux questions se posent lorsqu'on veut savoir si le système éducatif contribue à l'égalité entre individus :

- Les dépenses d'éducation ont-elles un bon rendement pour celui qui les effectue ?
- Les pouvoirs publics contribuent-ils à l'égalisation des conditions par leur offre de services éducatifs ?

Les économistes s'efforcent depuis quelques années de répondre à la première question ; ils essaient seulement, depuis peu et après les sociologues, d'aborder la seconde.

A - LA LIAISON ENTRE NIVEAU DE FORMATION ET REUSSITE SOCIALE EN FRANCE.

Cette liaison a d'abord été étudiée aux Etats-Unis. Après divers travaux montrant qu'une liaison étroite existait entre le niveau d'études et le montant des gains individuels, l'hypothèse fut émise que l'éducation, par les connaissances supplémentaires qu'elle permet d'acquérir, augmente la productivité de celui qui l'a reçue. En conséquence, il a paru utile de comparer les coûts de l'éducation avec les bénéfices qu'on en retire et donc de calculer des taux de rendement de ce que l'on a commencé à appeler l'investissement éducatif.(1) Si ces études se sont multipliées au cours des dix dernières années, tant aux Etats-Unis que dans d'autres pays (2), il n'en existait jusqu'à ces derniers mois aucune en France. La raison principale de cette absence était le manque

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(1)Il ne nous paraît pas utile de nous étendre plus longtemps sur des recherches qui sont aujourd'hui bien connues. Le lecteur souhaitant plus de précision pourra se reporter à l'examen critique des diverses études menées dans ce domaine depuis une vingtaine d'années, qui a été présenté dans un numéro spécial de la Revue d'Economie Politique. Cf. J.C. EICHER : *"L'Education comme investissement : la fin des illusions ?"* R. E. P. N° 3 - 1973 - p. 407 à 432.

(2) cf. la monumentale étude de George PSACHAROPOULOS : *"Returns to Education. An international comparison"* - Amsterdam - Elsevier 1973.-

d'enquêtes statistiques fournissant à la fois le niveau de formation, l'âge et le revenu. Un premier calcul a été tenté à la fin de 1973 qui apporte à la fois des données chiffrées et une réflexion intéressante.
Mais d'autres recherches avaient montré peu auparavant que la variance des gains s'explique par bien d'autres facteurs que par l'éducation mettant ainsi en question l'intérêt des mesures de taux de rendement. D'autres modes d'approches, plus sociologiques doivent donc être tentés.

1. Les taux de rendement par filière éducative.

La mesure des données permettant des calculs de taux de rendement a été effectuée entre 1972 et 1974. Elle porte, dans un premier temps, sur l'année 1970.
La mesure des coûts, par payeur et par filière éducative a été réalisée par l'Institut de Recherche sur l'Economie de l'Education de l'Université de Dijon. Parallèlement, une équipe du Centre de Recherches et de Documentation sur la Consommation (C.R.E.D.O.C.) sous la direction de L. LEVY-GARBOUA, calculait des profils âge-gains pour des individus ayant suivi les mêmes filières (1).
Ces derniers travaux, ainsi que ceux effectués auparavant dans cette direction par le même auteur (2) montrent le même parallélisme entre le *niveau* d'études et le niveau de gain que celui enregistré dans les autres pays ainsi que des différences caractéristiques selon les *filières* suivies.
Quelques résultats, parmi les plus significatifs, portant sur l'année 1970, sont présentés dans le tableau suivant.

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(1) Ces travaux conjoints ont été effectués dans le cadre d'une A.T.P. du C. N. R. S. Les résultats de l'étude sur les coûts qui ne nous intéressent pas directement ici pourront être trouvés dans : A. MINGAT, J.-M. CARRE, J.-J. FRIBOULET : *"Les dépenses d'éducation à la charge des parents"* - Cahier de l'I. R. E. D. U. - ronéoté - avril 1974.

(2) cf. L. LEVY-GARBOUA : *"Une analyse économique de la distribution des revenus individuels"* - Thèse pour le Doctorat de Sciences Economiques - Université de PARIS I - 1972.
et du même auteur : *"Les profils âge-gains correspondant à quelques formations type en France* - C.R.E.D.O.C. - juin 1973.

TABLEAU I : LES PROFILS AGE-GAINS POUR QUELQUES FORMATIONS TYPE EN FRANCE.

Année 1970 - HOMMES.

En France 1970

FORMATION / TRANCHE D'AGE	PRIMAIRE		SECONDAIRE				SUPERIEUR		
			Technique		Général				
	sans diplôme ni apprentissage sur le tas.	C.E.P. sans apprentissage sur le tas.	COURT	LONG	sans diplôme	avec BAC 2è partie	Licence ès Sciences	Licence Droit ou Sce. Eco.	Tous diplômes supérieurs
18 - 19	9 560	12 780	9 770	11 570	9 800	12 530	--	--	--
30 - 34	12 940	15 960	18 580	26 990	19 350	25 810	29 700	39 430	38 260
40 - 44	13 720	16 680	21 690	32 260	24 760	41 440	54 310	60 450	56 900

Source : L. LEVY-GARBOUA : *"Les profils âge-gains correspondant à quelques formations type en France"* p. 38 et 35.

On peut remarquer que les gains augmentent avec le niveau de formation et que le profil âge-gains est d'autant plus aigu que le niveau de formation est plus élevé. Mais on voit aussi que les gains de ceux qui ont suivi une filière technique sont moins élevés que ceux des élèves de l'enseignement général et que la progression avec l'âge est bien moins forte chez les premiers que chez les seconds.
Une analyse plus fine indique qu'à niveau de formation égal, les gains moyens diffèrent nettement selon l'origine sociale et le sexe :

Aux niveaux fréquentés par la totalité ou une fraction importante des enfants de toutes les classes sociales tout d'abord, on observe que les enfants d'agriculteurs et les enfants d'ouvriers gagnent en général un peu plus que les enfants des milieux "travailleurs indépendants" et "cols blancs" en début de carrière mais que ces derniers voient leur rémunération augmenter beaucoup plus vite. Ainsi, si on appelle avec L. LEVY-GARBOUA *coefficient de discrimination (d)* le rapport

$$\frac{\text{salaire moyen du milieu "indépendants et cols blancs"}}{\text{salaire moyen du milieu observé}}$$

on trouve les chiffres suivants :

TABLEAU II : DIFFERENCES DE SALAIRES SELON L'ORIGINE SOCIALE EN FRANCE

FORMATION / AGE	PRIMAIRE SANS DIPLOME		PRIMAIRE AVEC DIPLOME		SECONDAIRE		
					TECHNIQUE COURT		BAC toutes filières
	Milieu agricole	Milieu ouvrier	Milieu agricole	Milieu ouvrier	Milieu agricole	Milieu ouvrier	Milieu ouvrier
16 - 19	- 9	- 7	...	+ 32	- 8	- 4	- 16
20 - 39	+ 3	- 7	+ 19	+ 11	+ 22	+ 10	+ 16
40 - 49	+ 45	+ 26	+ 20	+ 12	0	+ 4	+ 47

Source : LEVY-GARBOUA, op.cit. p. 44.

Pour le supérieur, les chiffres disponibles sont moins détaillés à cause de la petitesse de l'échantillon. On peut seulement comparer les gains des individus issus du milieu "indépendants - cols blancs" aux gains moyens par filières. On observe également un avantage pour cette classe, mais elle est plus nette en début de carrière (où les gains sont supérieurs d'environ 25 % à la moyenne) que vers 50 ans (où ils dépassent la moyenne de 8 % seulement).

Cette différence par rapport à ce que l'on observe aux niveaux inférieurs de formation appelle une explication. Nous en proposons une ici, à titre d'hypothèse, basée sur les résultats indiqués dans la première partie de ce rapport : au niveau de l'enseignement supérieur, un "écrémage" considérable des effectifs provenant des classes sociales défavorisées a déjà été effectué. On peut donc penser que les qualités intellectuelles que l'on demande dans le système éducatif sont aussi développées en moyenne dans tous les groupes, même si elles étaient inégales au départ. En conséquence, les différences initiales dans les gains ne peuvent s'expliquer que par le népotisme, la meilleure information sur les emplois possédée par les jeunes issus des classes privilégiées, ou leur "attitude" (1) plus conforme aux exigences du système de production.
L'égalisation relative au cours de la carrière résulterait alors d'un développement d'attitudes plus appréciées et d'un affaiblissement des avantages initiaux dus à la meilleure information.

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(1) Le terme est pris ici dans le sens que GINTIS lui donne. Cf. Herbert GINTIS *"Education, technology and the charasteristics of worker productivity"* A.E.R. - Mai 1971 - p. 266 à 279.

Au niveau primaire, c'est à peu près certainement la différence de profession qui explique les avantages relatifs car on sait que ce sont seulement les enfants les moins doués des classes favorisées qui ont arrêté leurs études à ce niveau. L'avantage apparent qui est révélé par ces chiffres sous-estime donc l'avantage réel, à niveau intellectuel comparable. Cette interprétation est confirmée par certains des résultats d'une autre étude sur les liaisons entre niveau de formation et salaires, celle de Lucille JALLADE (1). Ce travail, réalisé à partir de données chiffrées entièrement différentes de celles utilisées par LEVY-GARBOUA (il s'agit ici d'une enquête menée dans 21 grandes entreprises privées des secteurs de la Chimie, de l'électronique et des transports et dans une entreprise nationalisée : la S. N. C. F.), confirme l'existence d'une nette différence de gains, à nombre d'années d'études et à niveau de diplôme égaux, en faveur des diplômés de l'enseignement général par rapport à ceux de l'enseignement technique. Mais elle montre en plus que l'effet "inter-profession" de la filière suivie est beaucoup plus fort que l'effet "intra-profession" c'est-à-dire que c'est essentiellement parce que les diplômes de l'enseignement général donnent plus facilement accès à des professions particulièrement bien rémunérées que les diplômes de l'enseignement technique qu'ils avantagent leurs titulaires.

Par exemple, entre titulaires du Baccalauréat général et titulaires du Baccalauréat technique, l'écart moyen de salaire enregistré était, dans cet échantillon, de 472 francs par mois, et semblait attribuable en quasi-totalité à l'effet interprofessionnel.

Les différences entre hommes et femmes sont également assez marquées. Par exemple, au niveau de l'enseignement supérieur, en moyenne, les gains observés sont les suivants : (en Francs 1970)

	HOMMES	FEMMES
22-24 ans	16 810	15 320
25-29 ans	27 480	19 100
35-39 ans	47 900	26 390
45-49 ans	57 510	29 580

Mais ces différences sont très difficiles à interpréter sans une analyse beaucoup plus détaillée, car elles peuvent être dues :

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(1) cf. Lucille ARRIGAZZI JALLADE : *"Niveau d'instruction et salaires en France"* Thèse de 3è cycle (ronéo.) Université de PARIS VIII-Vincennes,1972.

- au fait que les femmes interrompent souvent leur carrière pour la reprendre ensuite, ce qui les empêche d'obtenir les mêmes promotions que les hommes,
- au fait que l'on trouve des femmes surtout dans les professions peu payées du secteur public,
- au type de diplôme obtenu,
- à la discrimination.

Aucune étude spécifique n'a été menée à ce jour pour permettre de saisir avec précision l'influence de chacun de ces facteurs.

On peut donc dire que les résultats des études françaises sur les liaisons entre les gains et le niveau de formation confirment assez largement les enseignements d'études similaires faites dans d'autres pays mais apportent des informations plus détaillées sur les différences entre *filières*.

Il faut se demander maintenant si ces différences ne sont pas atténuées ou au contraire renforcées par des différences dans le coût privé des études. Les mesures de taux de rendement peuvent en principe nous renseigner sur ce point.

Ces études sont encore partielles (1) mais les premiers chiffres calculés en décembre 1973 (2), sont malgré tout intéressants. Deux taux ont été calculés selon que l'on attribue la totalité des différences de revenus à la formation reçue (*Taux "brut"*) ou qu'on prend la proportion de 3/5 d'abord utilisée par DENISON et défendue par plusieurs auteurs (3) (*Taux "net"*). Les taux calculés entre niveaux successifs et par filières donnent les résultats suivants :

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(1) Une étude plus détaillée est à l'heure actuelle en cours en collaboration entre L. LEVY-GARBOUA et A. MINGAT.

(2) cf. A. MINGAT - L. LEVY-GARBOUA : *"Les taux de rendement privés de l'éducation en France"*. Document ronéoté - Décembre 1973.

(3) cf. notamment le *"plaidoyer"* de M. BLAUG dans *"An introduction to the Economics of Education"* Londres - Penguin 1972 - p. 51 à 53.

TABLEAU III : TAUX DE RENDEMENT PRIVES DE LA FORMATION PAR NIVEAU EN FRANCE - 1970 -

NIVEAU \ TAUX		TAUX BRUTS		TAUX NETS	
		HOMMES	FEMMES	HOMMES	FEMMES
SECONDAIRE	Technique court / Primaire	10,5 %	11,9 %	7,5 %	8,7 %
	Technique long / Primaire	15,4 %	19,0 %	11,7 %	12,9 %
	Général / Primaire	13,8 %	16,3 %	10,9 %	11,8 %
SUPERIEUR	MAITRISE / BAC	12,2 %	5,6 %	8,5 %	3,4 %

Les données disponibles ne permettaient de mesurer des taux différentiels par origine sociale que de façon assez grossière et pour deux filières seulement: le technique court et le secondaire général.

TABLEAU IV : TAUX DE RENDEMENT PRIVES PAR ORIGINE SOCIALE, POUR DEUX FILIERES

FILIERE \ ORIGINE SOCIALE	Milieu agricole	Milieu ouvrier	Milieu "indépendants" et "cols blancs"
TECHNIQUE COURT :			
- Hommes	8,4 %	8,7 %	9,6 %
- Femmes	11,0 %	10,8 %	17,2 %
SECONDAIRE GENERAL:			
- Hommes	--	12,3 %	13,3 %
- Femmes	17,2 %	15,0 %	18,7 %

Les différences observées ne vont pas toujours dans le même sens que celles constatées sur les gains. En effet, d'une part les différences selon l'origine sociale sont nettement moins marquées que celles entre gains, surtout chez les hommes et elles sont beaucoup moins défavorables aux agriculteurs ; d'autre part, les taux de rendement sont souvent plus élevés pour les femmes que pour les hommes alors que celles-ci gagnent moins que ceux-là. Mais, dans ce dernier cas, même si ces chiffres pouvaient être acceptés sans discussion, -ce qui n'est pas le cas- ils signifieraient seulement que les femmes qui ont seulement un niveau de formation primaire sont encore plus défavorisées que celles qui ont fait des études secondaires lesquelles sont également avantagées, relativement, par rapport à celles qui ont une maîtrise.
Mais il faut vraiment nous demander quel crédit on peut accorder à ces chiffres.

2. Examen critique des résultats des études françaises.

Tout essai de mesure, surtout dans un domaine où les données sont rares et imprécises, prête le flanc à la critique puisqu'il nécessite un certain nombre d'hypothèses assez arbitraires pour être mené à bien. Mais, du point de vue qui nous intéresse, c'est-à-dire l'étude des effets égalisateurs de l'enseignement, ces indices et la méthodologie qui les inspire ne semblent pas très adaptés.

La valeur des données françaises laisse encore beaucoup à désirer : nous nous contenterons ici de mentionner les principales critiques que l'on peut leur adresser.

1 - Les données concernant les gains ont été fournies par plusieurs enquêtes, ce qui signifie

a) que les données ne sont pas tout à fait comparables d'une enquête à l'autre ;
b) que les gains sont, comme toujours, en France au moins, sous-estimés par les intéressés et probablement inégalement selon qu'il s'agit de salariés ou de non salariés.

2 - Les gains sont calculés avant impôts alors qu'ils devraient l'être après impôts.

3 - Les gains sont redressés pour tenir compte du chômage mais de façon globale et pas par catégorie sociale.

4 - Le manque à gagner a été calculé directement à partir d'une des enquêtes sur les gains. Aucun redressement n'a été effectué. Or les études précédentes, notamment américaines, ont montré qu'en moyenne ceux qui

ne continuent pas sont moins doués que ceux qui continuent et qu'on sous-estime donc le manque à gagner de ces derniers en l'assimilant au gain des premiers.

5 - La définition des dépenses d'éducation des familles est très large, plus large en tous cas que celle des dépenses publiques d'enseignement.

6 - Enfin et surtout, il s'agit de données transversales que l'on utilise pour reconstituer les profils de carrières d'individus qui ont connu des situations très différentes au début de leur vie active.

Mais cette dernière critique dépasse largement le cadre de la critique des données.

La méthode n'est pas adaptée au but poursuivi.
4 critiques peuvent lui être adressées :

1 - Elle n'est pas adaptée parce qu'elle est transversale. En effet, les inégalités de taux de rendement observées entre catégories sociales et entre sexes peuvent très bien résulter de situations historiques qui ne se renouvelleront plus. Ainsi, le profil âge-gains beaucoup plus accusé des diplômes de l'enseignement secondaire général par rapport aux diplômes de l'enseignement technique long, peut très bien s'expliquer par le fait que ceux qui ont aujourd'hui de 40 à 44 ans étaient peu nombreux à obtenir le diplôme d'enseignement général et avaient donc accès à des emplois très avantageux, ce qui n'est plus le cas actuellement. On ne peut donc pas dire que les profils âge-gains de ceux qui entrent aujourd'hui dans la vie active seront comparables aux profils fournis par les données transversales. Il y a même des raisons de penser que les diplômés actuels de l'enseignement général n'auront pas des revenus supérieurs aux diplômés de l'enseignement technique à cause des caractéristiques nouvelles du marché du travail.

De même, la faiblesse du taux de rendement marginal transversal de l'enseignement supérieur pour les femmes peut très bien provenir du fait que les gains en milieu de carrière sont beaucoup plus bas pour les femmes que pour les hommes de la génération qui a aujourd'hui entre 40 et 50 ans, cette différence étant elle-même due à deux faits qui ont tendance à se résorber : la concentration des diplômées de l'enseignement supérieur de cet âge dans l'enseignement et les professions para-médicales -emplois peu payés- et l'arrêt de la carrière professionnelle des femmes entre 25 et 40 ans environ.

Les taux transversaux observés ne sont donc pas de bons indicateurs des inégalités présentes.

2 - La méthode n'est pas adaptée parce qu'elle repose au départ sur l'hypothèse que l'éducation est un investissement. C'est frappant quand on calcule des taux bruts. On suppose en effet que toutes les différences de revenus observés entre individus de niveaux de formation différents sont attribuables à cette formation. On suppose donc le problème de l'influence de l'éducation sur l'égalité des revenus et des conditions résolu. On est donc dépourvu d'explication lorsqu'on observe que le taux varie selon l'origine sociale ou selon le sexe des intéressés.
Lorsqu'on calcule des taux nets, on n'est guère plus avancé. Car, d'une part, dans le cas de la France au moins, on n'a aucune preuve que la variance des gains observée est attribuable, a priori, pour les 3/5 aux différences dans le niveau de formation ; d'autre part, on suppose également le problème en partie résolu au lieu d'étudier systématiquement les déterminants de la variance des gains.

3 - La méthode n'est pas adaptée car elle ne tient pas compte de la séparation du système éducatif en filières de longueur inégale et sans communication ou presque entre elles. Ainsi, le taux de rendement interne n'est pas un bon indicateur de l'intérêt économique qu'il y a à poursuivre des études dans telle ou telle filière. Car peu importe par exemple que l'enseignement technique court ait un taux de rendement supérieur à celui de deux années d'enseignement général si cette dernière voie est le point de passage obligatoire vers les filières hautement rentables de l'enseignement supérieur.

Il ne serait même pas utile de comparer la rentabilité de filières complètes car une filière courte peut être très rentable et n'apporter qu'un revenu très modeste alors qu'une filière plus longue, dont le taux de rendement est moindre, permet cependant d'accéder aux tranches de revenus supérieurs.
Enfin, il faudrait considérer les solutions alternatives *possibles* pour chaque groupe. Pour les enfants d'ouvriers par exemple, il est très possible que l'enseignement, même s'il est peu "rentable" en apparence, soit la seule voie d'ascension sociale possible.

4 - La méthode n'est pas adaptée car elle ne tient pas compte de l'existence possible de taux d'actualisation implicites très différents d'un groupe à l'autre, c'est-à-dire de la possibilité qu'un investissement de même coût et de même rapport apparent soit considéré comme rentable par l'un et pas rentable par l'autre, en particulier parce que les besoins présents sont si importants par rapport aux ressources chez l'un qu'il ne peut se permettre la dépense d'éducation alors que l'autre est assez riche pour faire le sacrifice (1).

En conclusion, on peut dire que le calcul des taux de rendement n'apporte presque rien à l'analyse des effets de l'éducation sur l'égalité. Ce n'est pas parce qu'on observe une liaison étroite entre niveau de formation et niveau de gain qu'on peut en conclure que plus le fils sera éduqué par rapport au père, plus il aura de chances d'accèder à une catégorie socio-professionnelle supérieure à celle de son père.

3. Les liens entre niveau d'éducation et mobilité sociale.

Depuis peu d'années les sociologues essaient de remplacer les théories a priori sur le rôle de l'école dans l'égalisation des chances par des études empiriques au service d'une analyse de système. Ces études ont toutes infirmé l'hypothèse selon laquelle le développement de la scolarisation est le canal privilégié de l'égalisation des chances (2).

Qu'en est-il en France ?

Plusieurs études, notamment celles de BOURDIEU et PASSERON (3) et celle de BAUDELOT et ESTABLET (4) avaient présenté avec force la thèse selon laquelle l'école ne joue aucun rôle dans l'égalisation des chances et des situations parce que la structure des classes détermine de façon rigide à la fois le niveau et le type de formation et la place dans la structure socio-professionnelle.

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(1) Ce point et le précédent ont été développés de façon plus rigoureuse dans A. MINGA *"Analyse théorique de la demande d'éducation et optimisation de l'investissement éducatif"* R.E.P. n° 3, 1973., et dans la première partie de ce rapport.

(2) Ne pouvant présenter de longs développements sur ce point, nous renvoyons à l'ouvrage magistral de Raymond BOUDON : *"L'inégalité des chances"* Armand Colin-Collection U. 1973.

(3) cf. P. BOURDIEU et J.-C. PASSERON : *"Les Héritiers"* Ed. de Minuit - 1964 - et *"La Reproduction"* Ed. de Minuit - 1970 -

(4) cf. C.BAUDELOT et R.ESTABLET : *"L'Ecole Capitaliste en France"* Maspéro 1971.

Ces travaux souffrent de partir d'un a priori et succombent parfois au désir de trop prouver. On peut leur adresser deux reproches principaux :

1 - Le déterminisme implacable qu'ils prétendent démontrer n'est pas prouvé de façon convaincante par les données empiriques que leurs auteurs présentent. Ceci est d'autant plus fâcheux que plusieurs études étrangères (1) se rejoignent pour constater au contraire que les liaisons entre les différentes formes d'inégalités sont faibles, si bien que la France constituerait donc un cas particulier.

2 - Le maintien de l'inégalité des chances devant l'enseignement à travers le temps en France est démontré par ces auteurs à partir de données sur les taux de scolarisation dont nous avons déjà pu dire qu'elles sont imprécises dans leurs définitions, souvent contradictoires et en tous cas si peu homogènes qu'elles sont pratiquement inutilisables pour démontrer quoi que ce soit (2).

Il semble donc qu'une voie plus analytique, plus positive, s'impose. Mais, en même temps, l'exemple de l'incapacité des études étrangères, notamment celle de JENCKS pour les Etats-Unis, à expliquer les liaisons qui existent entre les différentes formes d'inégalité, montre qu'une analyse de système prenant directement en compte, en plus des variables individuelles, des variables structurelles, est nécessaire pour essayer d'y voir clair.

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(1) cf. en particulier : C. JENCKS : *Inequality, a reassessment of the Effect of Family and Schooling in America* New-York, Basic Books - 1972 -
L. THUROW : *Education and Economic Inequality* The Public Interest, été 1972 ;
D. GLASS : *Social Mobility in Britain* Londres, Routledge and Kegan Paul, 1954 ;
G. CARSSON : *Social Mobility and Class Structure* Lund, Gleerup, 1958.

(2) Nous ne donnerons ici qu'un exemple. Dans leurs deux ouvrages successifs sur la question, BOURDIEU et PASSERON donnent pour la même année 1961-62 des taux de scolarisation par origine socio-professionnelle très différents. Dans "*Les Héritiers*" pour la catégorie "Professions libérales et cadres supérieurs", par exemple, on trouve un taux de 58,5 % (chapitre I, tableau I, p. 15) alors que dans "*La Reproduction*" on observe pour la même catégorie, un taux de 38 % (p. 260). Cette divergence est d'autant plus gênante que les auteurs s'appuient sur le second chiffre (38 %) pour montrer que le taux de scolarisation de cette catégorie privilégiée a augmenté presque autant que celui des classes défavorisées entre 1961-62 et 1965-66. Si les auteurs avaient choisi le taux indiqué dans leur précédent ouvrage, ils auraient abouti à une conclusion inverse, puisqu'ils auraient alors observé une stabilité du taux de scolarisation pour les enfants de cadres supérieurs entre 1961-62 et 1965-66.

C'est ce qui a été tenté depuis quelques années par le Centre d'Etudes Sociologiques et par le Professeur R. BOUDON.

Dans un premier temps, l'objectif a été de trouver des données françaises auxquelles appliquer des analyses statistiques du type de celle de C. JENCKS afin de voir si l'on trouvait un aussi grand degré d'indétermination. Une première étude a été menée par le Centre d'Etudes Sociologiques à partir des données de l'enquête réalisée en 1966-67 par l'I.N.S.E.E. sur la mobilité sociale et professionnelle.

Ses principaux résultats sont présentés dans le tableau ci-dessous :

TABLEAU V : STATUTS SOCIO-PROFESSIONNELS EN FONCTION DU NIVEAU D'ETUDES ET DE L'ORIGINE SOCIALE - France, 1964

CATEGORIE SOCIO-PROFES. DU PERE	NIVEAU SCOLAIRE DU REPONDANT	CATEGORIE SOCIO-PROFESSIONNELLE DU REPONDANT				
		Prof. lib. cad. sup.	cad. moyens techniciens	employés	ouvriers	TOTAL
Prof. libér. cadres sup.	*1. Primaire*	12,62	21,96	13,08	32,24	100,00
	2. Secondaire	30,72	33,54	14,11	3,45	100,00
	3. Supérieur	68,41	15,07	4,35	0,00	100,00
Cadres moyens Techniciens	*1. Primaire*	3,67	29,29	11,21	33,87	100,00
	2. Secondaire	17,44	43,49	14,88	15,35	100,00
	3. Supérieur	57,25	38,41	0,00	3,62	100,00
Employés	*1. Primaire*	2,57	11,71	14,62	54,40	100,00
	2. secondaire	15,21	35,66	19,45	17,46	100,00
	3. Supérieur	61,54	7,69	0,00	0,00	100,00
Ouvriers	*1. Primaire*	0,86	5,64	6,63	76,76	100,00
	2. Secondaire	7,31	25,35	20,71	34,93	100,00
	3. Supérieur	59,18	40,82	0,00	0,00	100,00

Source : I.N.S.E.E. et R. BOUDON, op. cit. p. 159.

Ces résultats sont assez clairs. Ils montrent certes d'une part que la liaison entre niveau scolaire et catégorie socio-professionnelle est nette ; mais ils indiquent d'autre part, qu'à niveau d'études égal, la place du fils dans la hiérarchie socio-professionnelle est très liée à celle du père. Ainsi, parmi ceux qui ont fait des études secondaires, plus de 30 % des enfants de cadres supérieurs deviennent eux-mêmes cadres supérieurs, contre 17 % des enfants de cadres moyens, 15 % des enfants d'employés et seulement 7 % des enfants d'ouvriers. A l'inverse, au même niveau d'études, seulement 3,5 % des enfants de cadres supérieurs deviennent ouvriers alors que 35 % des enfants d'ouvriers le restent.

Ces résultats qui confirment d'ailleurs ceux d'une étude anglaise antérieure, montrent l'existence d'une double structure : *"structure de dominance"* d'une part, *"structure méritocratique"* de l'autre (1). Ils sont donc plus proches de ceux de JENCKS que de la thèse de BOURDIEU et PASSERON. Cependant, ils ne permettent pas de conclure sur l'évolution de la mobilité liée à l'éducation à travers le temps. Il faudra d'autres travaux, dont certains sont d'ailleurs en cours, pour faire des comparaisons dans le temps (2).

Dans un deuxième temps, une méthodologie nouvelle doit être mise au point. C'est ce à quoi s'emploie R. BOUDON dont les premiers modèles permettent *"d'analyser la relation entre les diverses formes d'inégalités auxquelles JENCKS s'est intéressé, en tenant compte des variables structurelles"* (3), telles que le taux de scolarisation de la population d'âge scolaire et le pourcentage d'emplois manuels. BOUDON a ainsi pu montrer que *"dans une société fortement stratifiée et ou l'inégalité des chances devant l'enseignement est marquée, la liaison entre les différentes formes d'inégalités doit être faible lorsqu'on fait des hypothèses réalistes sur le changement des variables structurelles, comme celles qui caractérisent les structures éducationnelles et sociales"* (4), c'est-à-dire lorsqu'on tient compte du fait que les taux de scolarisation ont augmenté plus vite et autrement que ne s'est modifiée la structure des emplois.

En conclusion, on peut donc dire d'une part, que la France ne présente pas de caractéristiques très différentes des autres pays en matière de liaison entre éducation et égalité des chances ; d'autre part, que l'analyse économique par les taux de rendement nous renseigne mal sur ce point, alors que les travaux récents de sociologues apportent beaucoup plus d'éléments intéressants.

Mais il est un autre point, plus precis, sur lequel l'économiste peut apporter des éléments ; celui des effets redistributifs des dépenses publiques d'enseignement.

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(1) R. BOUDON - *L'inégalité des chances* - op. cit. p. 158

(2) Les résultats d'une nouvelle enquête de l'INSEE réalisée en 1970 n'étaient pas encore disponibles au moment où ont été écrites ces lignes.

(3) R. BOUDON - *La sociologie des inégalités dans l'impasse ?* - En marge du livre de C. JENCKS : *Inequality* - Analyse et Prévision t. XVII - 1974 - p. 94

(4) ibid.

B - LES EFFETS REDISTRIBUTIFS DES DEPENSES PUBLIQUES D'ENSEIGNEMENT

Trois sources de renseignements directement exploitables existent à l'heure actuelle en France. Mais ces études diffèrent par leur objectif et par leur méthodologie. Les données chiffrées qu'on peut en extraire sont donc en partie complémentaires mais pas directement comparables. Nous essaierons donc tout d'abord de présenter de façon critique chacune de ces sources, avant de nous interroger sur la méthodologie la plus appropriée pour apprécier les effets redistributifs de l'enseignement supérieur.

1. Les recherches faites à l'IREDU à partir de l'enquête sur les coûts d'éducation à la charge des familles

Dans cette première étude, on avait essayé de bien distinguer entre les dépenses et les coûts d'une part, entre les coûts bruts (avant transferts) et les coûts nets (après transferts) d'autre part. Cependant, le seul type de transfert qui était directement saisissable était la bourse puisque ce renseignement figurait dans le questionnaire (1). Comme les autres ne peuvent exister qu'au delà de la scolarité obligatoire et que l'observation ne portait que sur les enseignements primaire et secondaire, les seules familles concernées étaient celles qui avaient des enfants en fin de second cycle long. Bien qu'on aboutisse ainsi à une sous-estimation, ces autres transferts ont donc été omis (2). Distinguant les dépenses d'enseignement au sens strict (Y_1) et les dépenses socio-culturelles moins obligatoires, mais directement liées à l'enseignement (Y_2), les auteurs calculent deux totaux :

. Y_3 = coût brut d'éducation à la charge des familles = $Y_1 + Y_2$

. Y_4 = coût net d'éducation à la charge des familles = Y_3 - bourse.

Nous n'examinerons en détail ici que les effets redistributifs de la bourse selon la C.S.P. et la filière suivie par l'élève. Mais nous donnerons quelques éléments de réponse sur les autres formes de redistribution observées en renvoyant le lecteur à l'étude complète, pour plus de détails.

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(1) A strictement parler, l'étude permettait d'en saisir un autre, dans la mesure où le coût de la cantine ou de l'internat est inférieur, pour certains, à ce qui aurait été dépensé à la maison.

(2) Cette sous-estimation n'est malheureusement pas égale pour toutes les C.S.P. parce que le retard scolaire moyen varie nettement d'une C.S.P. à l'autre. Ainsi les familles d'origine modeste ont proportionnellement plus d'enfants de plus de 16 ans dans l'enseignement secondaire que les familles aisées.

Les principaux résultats par catégorie socio-professionnelle et filière peuvent être regroupés dans le tableau suivant :

TABLEAU VI : INFLUENCE DES BOURSES SUR LE COUT DE L'EDUCATION A LA CHARGE DES PARENTS DES DIFFERENTES CATEGORIES SOCIO-PROFESSIONNELLES - en france 1972 -

C.S.P. / FILIERE		Agriculteur	Artisan Commerçant	Patron Cad.Sup. Prof.lib.	Cadre moyen	Employé	Ouvrier	$\frac{\bar{Y}_3}{\bar{Y}_4}$
6è-5è type I	Y_3	750	708	810	604	469	514	582
	Y_4	482	585	775	555	332	351	438
4è-3è type I	Y_3	1013	555	687	848	593	645	684
	Y_4	751	415	663	802	370	379	517
C.E.T.	Y_3	1200	1261	-	909	807	949	971
	Y_4	478	816	-	825	446	336	593
Lycée technique	Y_3	1441	1495	1409	1294	915	1105	1262
	Y_4	1046	1369	1397	1129	563	764	985
Lycée classique et moderne	Y_3	1172	1203	1389	1048	813	829	1088
	Y_4	857	1030	1387	988	516	558	920

Pour apprécier l'ampleur de la redistribution par les bourses, il faut donc se placer à plusieurs niveaux :

1. Par rapport au coût total brut Y_3, la réduction varie nettement selon la C.S.P.. L'ampleur de cette réduction change beaucoup d'une filière à l'autre (ainsi elle est beaucoup plus forte dans les filières techniques courtes que dans les lycées classiques et modernes), mais les catégories les plus favorisées sont partout les mêmes : on retrouve toujours en tête les ouvriers (réduction du coût allant de 65 % à 30 % selon les filières), suivis de très près par les agriculteurs (réduction allant de 60 % à 27 %), puis par les employés (45 % à 32 %), les artisans-commerçants (33 % à 9 %), les cadres moyens (9 % à 5 %) et enfin par les patrons

cadres supérieurs - professions libérales (4 % à 0 %).

2. Par référence au coût moyen pour toutes les C.S.P., on observe que parmi les C.S.P. qui avaient un coût total Y_3 supérieur au coût moyen, les agriculteurs (dont le coût Y_3 dépasse de 10 % à 45 % le coût moyen Y_3 selon les filières), se voient ramener à peu près à la moyenne par les bourses. On peut donc dire que la bourse compense pour eux le handicap qu'ils avaient au départ (nécessité de mettre les enfants en pension à cause de l'éloignement en particulier). Par contre, les patrons-cadres supérieurs-professions libérales qui avaient également un coût Y_3 très supérieur à la moyenne voient cette différence s'accentuer pour Y_4. Ceux qui avaient un coût Y_3 inférieur à la moyenne c'est-à-dire les ouvriers et les employés voient leur avantage s'accentuer. Quant aux cadres moyens, voisins généralement de la moyenne pour Y_3, ils passent nettement au-dessus pour Y_4.

La bourse opère donc une redistribution marquée entre les catégories socio-professionnelles. Mais elle opère aussi une redistribution entre familles de taille différente et entre les urbains et les ruraux. Ainsi, dans la filière technique courte (C.E.T.), les familles de un ou deux enfants passent d'un coût Y_3 de 905 F à un coût Y_4 de 667 F alors que les familles de cinq enfants ou plus passent de 1024 F à 466 F par enfant. Les familles résidant dans une grande agglomération passent de 768 F à 599 F en moyenne, alors que celles habitant un village de moins de 500 habitants passent de 1129 F à 600 F.

L'effet est moins marqué, mais de même direction pour les autres filières.

Ces résultats étant trop partiels pour apprécier globalement les transferts, on a essayé d'aller plus loin. Un premier essai en ce sens a été réalisé par A. MINGAT. Mais il est encore partiel car les variables à prendre en compte sont nombreuses, ainsi qu'on l'a vu dans la première partie. Il est en particulier impossible, au stade actuel de la recherche, d'observer la redistribution par C.S.P., parce qu'aucun transfert n'est effectué en fonction de ce critère. Mais le niveau de revenu, lié assez étroitement à la C.S.P., nous permet de faire des comparaisons.

Distinguant cinq niveaux de revenus et cinq tailles de familles de salariés, A. MINGAT a essayé de calculer l'aide apportée à un enfant entrant dans une filière selon le nombre d'enfants scolarisés de la famille et le revenu. Trois filières ont été étudiées, pour lesquelles les résultats sont donnés dans le tableau VII.

TABLEAU VII : SOMME DES TRANSFERTS EN FONCTION DU REVENU ET DE LA TAILLE DE LA FAMILLE

(Salariés - année 1973)

- Niveau 6è-5è - 1er cycle de l'enseignement secondaire

(niveau moyen du coût Y_1 = 550 F en type 1)

Fr. 73

Revenus \ Nbre d'enfants	1	2	3	4	5
10 000	213	295	375	505	505
20 000	0	0	248	254	254
50 000	0	0	0	0	0
80 000	0	0	0	0	0
100 000	0	0	0	0	0

- Niveau 2è cycle de l'enseignement secondaire - Lycée classique et moderne

(niveau moyen du coût Y_1 = 720 F)

Fr. 73

Revenus \ Nbre d'enfants	1	2	3	4	5
10 000	1 341	3 618	4 314	5 518	4 071
20 000	815	2 905	3 813	4 991	3 703
50 000	1 278	2 924	3 838	4 824	3 363
80 000	2 503	3 929	4 583	4 382	3 611
100 000	2 503	4 769	5 183	4 583	4 356

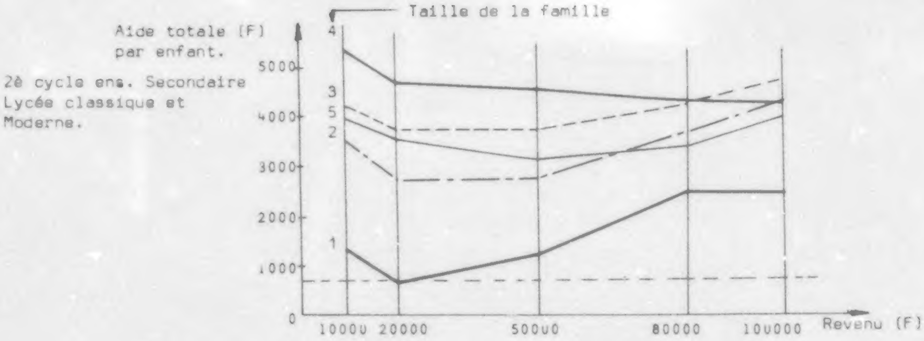
+ Niveau Université (niveau moyen du coût : 1 950 F)*

Fr. 73

Nbre d'enfants / Revenus	1	2	3	4	5
10 000	4 978 4 512	7 246 4 512	7 925 4 512	8 950 4 512	7 465 4 512
20 000	1 815 1 349	5 185 2 451	6 213 2 800	7 846 3 398	6 351 3 398
50 000	1 278 1 278	2 924 657	3 838 657	4 824 477	3 363 410
80 000	2 503 2 503	3 929 1 662	4 583 1 403	4 382 1 202	3 610 657
100 000	2 503 2 503	4 769 2 503	5 183 2 003	4 583 1 403	4 356 1 403

* Le premier chiffre inclut les prestations familiales (servies jusqu'à 20 ans) alors que le second les exclut.

On peut comparer ces transferts au coût direct d'instruction Y_1, observé dans l'enquête précédente. Alors que le Coût Y_1 est peu lié à la variables revenu, les transferts liés à la fréquentation scolaire sont relativement différents suivant qu'il s'agit d'une famille nombreuse ou pas et suivant que le revenu est élevé ou bas. Ce qu'il faut retenir, c'est que les bourses correspondent à une part relativement peu importante des aides et que pour les familles économiquement favorisées, le manque à payer fiscal s'y substitue parfois même largement. En règle générale, pour un revenu familial donné, l'aide marginale la plus importante correspond à une famille de 4 enfants, pour décroître au-delà de cette taille. En ce qui concerne le montant global de l'aide en fonction du revenu pour une taille donnée, on observe que ce sont les familles de revenu moyen qui profitent le moins des aides de la collectivité. Le graphique suivant illustre très bien les différents points.



2. L'étude du C.R.E.D.O.C. sur les effets redistributifs du budget de l'Education Nationale (1)

L'optique choisie n'est plus ici celle de la famille mais celle de l'administration. Cela implique :

- une vision transversale ; "il est en effet logique de supposer que les pouvoirs publics s'adressent à plusieurs générations d'élèves à la fois, et qu'ils tiennent compte dans leurs actions des rémanences dues aux mesures passées et du renouvellement constant de la population des bénéficiaires" (2).
- une limitation à la redistribution des revenus courants, ce qui suppose toutes choses égales par ailleurs et en particulier que les changements dans le niveau d'offre publique d'enseignement ne modifient pas l'offre de travail et donc les revenus primaires. Cette hypothèse n'est évidemment pas réaliste mais ne semble pas entraîner de gros inconvénients si on suppose que les familles ne réagissent qu'a posteriori.

Du point de vue de son champ d'observation, l'étude est très exhaustive puisqu'elle concerne l'ensemble des familles et l'ensemble des cycles d'enseignement. De plus, elle porte sur 5 années consécutives.

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(1) L. LEVY-GARBOUA assisté de G. MAILLARD : *"Budget de l'Education Nationale et redistribution des revenus entre 1965 et 1969"* C.R.E.D.O.C. - document ronéoté - 1973.

(2) cf. L. LEVY-GARBOUA, op. cit. p.2.

L'effort méthodologique a également été très poussé. Cependant l'étude nous paraît encore critiquable au moins sur deux points.

1. Elle s'efforce en effet de séparer les bénéfices perçus par les familles en deux parties : une partie reçue en fonction de la C.S.P. et une partie reçue en fonction de la taille.

Or, quand on examine bien la méthode employée, on s'aperçoit que "l'effet taille" n'est pas entièrement isolé et qu'une partie en est incluse dans "l'effet C.S.P.". Car "l'effet C.S.P." ne peut logiquement apparaître que dès le moment où la fréquentation d'une filière est facultative, en fonction de la demande d'éducation qu'exerce chaque C.S.P. Au niveau de l'enseignement obligatoire, toutes les familles ayant des enfants en âge d'être scolarisés touchent la même somme par enfant (bourses exclues).

Or, la méthode suivie par L. LEVY-GARBOUA consiste à calculer le nombre moyen d'enfants par famille et non le nombre moyens d'enfants scolarisables. Il en résulte qu'on obtient un résultat artificiel puisque seules les familles ayant des enfants à l'école perçoivent des bénéfices. Mais les difficultés d'une mesure correcte de l'effet taille étaient considérables, ce qui explique sans doute le choix de l'auteur.

2. Les effectifs scolarisés par C.S.P. sont calculés à partir des statistiques fournies par le Ministère de l'Education Nationale. Bien qu'elles soient moins critiquables que celles concernant les taux de scolarisation, ces données sont malgré tout, de l'aveu même de leurs auteurs, notoirement imprécises et, surtout variables dans leur définition d'une année sur l'autre. Elles forcent donc à considérer tous les résultats par C.S.P. avec réserve.

Malgré ces faiblesses, les résultats méritent d'être examinés. Nous résumerons seulement ceux concernant les deux niveaux de la scolarité facultative, les plus intéressants puisqu'ils indiquent le niveau des incitations publiques à poursuivre des études.

TABLEAU VIII : CREDIT BUDGETAIRE ANNUEL PERCU PAR FAMILLE, PAR C.S.P. POUR L'ENSEIGNEMENT DU SECOND CYCLE DU SECOND DEGRE

Année 1969 - F. courants.

C.S.P. du chef de famille \ Bénéfice perçu selon C.S.P. et taille	Bénéfice total	Effet taille	Effet C.S.P.
Ouvriers	357	60	297
Employés	369	20	349
Cadres moyens	439	- 20	459
Cadres supérieurs Professions libérales	490	68	422
Artisans, Petits commerçants	351	- 7	358
Industriels	405	54	351

TABLEAU IX : CREDIT BUDGETAIRE ANNUEL PERCU PAR FAMILLE, PAR C.S.P. POUR L'ENSEIGNEMENT SUPERIEUR

Année 1969 - F. courants.

C.S.P. du chef de famille \ Bénéfice perçu selon C.S.P. et taille	Bénéfice total	Effet taille	Effet C.S.P.
Ouvriers	89	3	86
Employés	248	20	228
Cadres moyens	405	- 55	460
Cadres supérieurs Professions libérales	925	130	795
Artisans, Petits commerçants	256	5	251
Industriels	719	175	544
Exploitants agricoles(1)	121	20	101

(1) On remarquera que la catégorie "exploitants agricoles" n'a pas été retenue dans le tableau VIII. C'est parce que beaucoup de fils d'agriculteurs fréquentent des établissements spécialisés (lycées et collèges agricoles) financés par le Ministère de l'Agriculture et non par le budget de l'Education Nationale.

Ces chiffres ne doivent pas surprendre puisqu'ils reflètent les différences dans la *"demande d'éducation"* des différentes catégories socio-professionnelles aux deux niveaux considérés.

Comme on pouvait s'y attendre, elles sont plus accentuées au niveau de l'enseignement supérieur.

Par ailleurs, on note que l'effet taille est beaucoup plus faible que l'effet catégorie socio-professionnelle. Certes, nous avons vu qu'il est sous-estimé, mais certainement pas de beaucoup.

Mais ce type d'étude est plus intéressant par l'évolution qu'elle permet d'observer que par les évaluations présentées par une année donnée. L'évolution paraît nette en France entre 1965 et 1969. Si on examine en effet, la position relative des différentes C.S.P., on constate que celles qui étaient favorisées en 1965 (qui touchaient des bénéfices supérieurs à la moyenne), le deviennent nettement en 1969. Ont perdu beaucoup : les industriels et les employés, beaucoup moins, les cadres supérieurs et professions libérales, les cadres moyens et les artisans petits commerçants. A l'inverse, les catégories *"défavorisées"* en 1965 le sont moins en 1969 : les exploitants agricoles, ont beaucoup gagné, les ouvriers moins. Sur ce point, l'étude nous donne donc des résultats très intéressants et mérite d'être continuée.

3. L'étude du C.E.P.R.E.M.A.P. sur les effets redistributifs de l'enseignement supérieur (1)

L'étude entreprise par le CEPREMAP est beaucoup plus ambitieuse que les précédentes et n'est pas encore tout à fait terminée à ce jour.

Cette étude est si ambitieuse qu'elle mérite qu'on s'arrête assez largement sur sa méthodologie avant de présenter et de commenter brièvement ses principaux résultats à ce jour.

a) Le cadre de référence et les problèmes qu'il pose

1. Les auteurs ont choisi une définition très large de la redistribution : *"la modification de la distribution primaire des revenus elle-même issue des dotations initiales des individus et de leurs revenus d'activité, par des transferts monétaires ou en nature, c'est-à-dire, par des opérations sans contrepartie"* (2). Mais ils limitent leur étude au domaine de l'enseignement supérieur et donc se contentent d'examiner *"l'incidence des transferts publics monétaires et en nature*

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(1) HORRIERE (Y) et PETIT (P) : *Les effets redistributifs de l'enseignement supérieur.* Document ronéoté CEPREMAP - décembre 1972.

(2) HORRIERE (Y) et PETIT (P) - op. cit. p. 3.

liés à l'enseignement supérieur sur les revenus, tant présents et réels que futurs et virtuels, des ménages et (ou) des individus concernés" (1).

Cette définition large les amène à étudier les effets de trois types d'action très différents et dont la prise en considération simultanée pose des problèmes considérables.

Le premier type d'action est l'ensemble de celles que l'Etat réalise au nom des ménages. Il regroupe du côté des prestations fournies aux ménages, les dépenses d'enseignement supérieur par filière et du côté des prélèvements, la partie des impôts directs et indirects et des cotisations sociales servant à financer les dépenses et les aides aux ménages pour l'enseignement supérieur.

En second, viennent les actions intéressant directement les ménages : frais de scolarité du côté des prélèvements, aides ou rémunérations versées aux étudiants et allocations familiales du côté des prestations.

Enfin, les opérations intéressant particulièrement les étudiants comprennent le manque à gagner (appelé coût d'opportunité par les auteurs), du côté des prélèvements et le supplément de revenu futur du côté des prestations.

Un problème se pose immédiatement pour le calcul des prélèvements : celui qui naît de la non affectation des ressources budgétaires. Les auteurs, après hésitation, ont donc décidé de supposer que les prélèvements destinés à l'enseignement supérieur sont égaux aux prestations affectées à l'enseignement supérieur. La convention suivante est donc appliquée : On ne prend en compte qu'une fraction λ des impôts directs, telle que λID (Impôt sur la dépense) + λIR (Impôt sur le revenu) = ES (Dépenses d'enseignement supérieur de l'Etat).

De même, on ne considère que la fraction μ des cotisations sociales, telle que μCS (cotisations sociales) = AF (allocations familiales versées pour des enfants-étudiants).

On peut donc résumer l'ensemble des opérations de redistribution dans l'enseignement supérieur, selon les définitions du C.E.P.R.E.M.A.P. par le tableau suivant :

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(1) HORRIERE (Y) et PETIT (P) : *Les effets redistributifs de l'enseignement supérieur.* Document ronéoté CEPREMAP - décembre 1972 page 3.

TABLEAU X : OPTIQUE REDISTRIBUTION - MENAGES

Opérations concernant les ménages, liées à l'enseignement supérieur	PRELEVEMENTS	PRESTATIONS
	1 ..... i .... k	1 ..... i ..... k
A. Opérations réalisées par les administrations	Impôt sur la dépense λID_i Impôt sur le revenu λIR_i Cotisations sociales μCS_i	Dépenses d'enseignement supérieur au prix coûtant selon les filières ES_i
B. Opérations intéressant directement les ménages	Frais de scolarité FS_i	Aides en nature AN_i Bourses, rémunérations BO_i Supplément d'allocations familiales AF_i
C. Opérations intéressant particulièrement les étudiants	Coût d'opportunité CO_i	Supplément de revenu obtenu KS_i

Source : HORRIERE (Y) et PETIT (P) op. cit. p. 26

avec : $\sum_i \lambda(ID_i + IR_i) = \sum_i \left[ES_i + AN_i + BO_i - FS_i\right]$ (1)

et $\sum_i \mu CS_i = \sum_i AF_i$

Cette étude constitue un effort systématique, la première en France, pour étudier les effets redistributifs de la fourniture d'un bien collectif spécifique.

Elle est donc intéressante autant par l'effort méthodologique qu'elle représente que par les résultats chiffrés qu'elle fournit.

Cependant, comme tout travail de pionnier, elle est imparfaite et ses résultats doivent être utilisés avec précaution.

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(1) $\sum_i \left[ES_i + AN_i + BO_i - FS_i\right]$ représente les dépenses budgétaires d'enseignement supérieur, comme différence entre l'ensemble des dépenses d'enseignement supérieur $\sum_i ES_i + AN_i + BO_i$ et les recettes propres $\sum_i FS_i$.

D'un point de vue théorique, la définition retenue, si elle permet d'observer plusieurs aspects du phénomène, nous paraît cependant receler des incohérences et des contradictions graves.

D'un point de vue statistique, la mesure de certaines grandeurs laisse encore beaucoup à désirer.

Attachons-nous d'abord au compte C. Nous observons tout de suite que, contrairement aux deux précédents, il implique une optique longitudinale puisqu'il compare des dépenses présentes et des revenus futurs anticipés. D'un point de vue logique, ce compte tel qu'il est présenté dans le tableau X, semble signifier que toute différence entre la somme des prélèvements et la somme des prestations du compte C, pour une catégorie de ménages i, doit être interprétée comme une redistribution en faveur ou au détriment de ce groupe. En fait, il faut inclure tous les coûts du côté du prélèvement pour faire une comparaison valable et les auteurs l'admettent volontiers.

Mais, même dans cette optique élargie, cette conception revient à dire qu'il ne peut y avoir de productivité de l'investissement éducatif, que les différences observées entre valeurs actualisées du coût et du bénéfice ne peuvent provenir que d'un transfert. Les auteurs semblent donc repousser a priori la théorie du capital humain, sans apporter de preuve d'aucune sorte à l'appui de leur thèse. Ce n'est que dans une phase ultérieure de la réflexion qu'ils reviennent sur ce point et adoptent une position très différente puisqu'ils comparent explicitement les suppléments de gains d'une C.S.P. et le supplément de produit créé par cette catégorie socio-professionnelle. Désormais, il devient possible, en théorie, de trancher a posteriori, à partir des résultats chiffrés entre théorie du capital humain et théorie du filtre par exemple (1).

En plus de ces problèmes de méthode, il y a évidemment les difficultés statistiques quasi-insurmontables qui s'opposent à une telle mesure. Mais nous les avons déjà mentionnées plus haut.

Dans un premier temps, les auteurs ont d'ailleurs choisi de se limiter à la redistribution effectuée par l'intermédiaire des administrations, c'est-à-dire, celle qui s'exerce dans les comptes A et B. Nous nous intéresserons donc désormais uniquement à ces derniers.

Au plan théorique, le problème essentiel posé par la méthode adoptée nous paraît être celui qui naît de la convention choisie pour équilibrer globalement les prestations et les prélèvements. Nous examinerons successivement le cas de l'impôt et le cas des cotisations sociales.

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(1) On pourra se reporter au rapport n°1 de juin 1973 - p. 3 à 8.

- le cas de l'impôt

Deux problèmes se posent ici. Tout d'abord, la convention est que chaque catégorie socio-professionnelle fournit la même proportion de ses impôts pour le financement de l'enseignement supérieur. Cette convention repose donc sur une hypothèse implicite sur la participation de chaque citoyen au financement des dépenses publiques et donc, par ricochet, sur l'importance attachée par le décideur public, représentant la collectivité, aux différentes fonctions collectives.

Prenons un exemple concret pour bien éclairer notre propos. Supposons que le gouvernement décide de diminuer la progressivité de l'impôt sur le revenu. L'impôt versé par les gros contribuables diminuera alors plus que proportionnellement à celui des petits contribuables. D'après la convention adoptée, l'effort fait en faveur de l'enseignement supérieur diminuera exactement en proportion de la baisse des recettes fiscales. Ceci signifie deux choses :

- que les gros contribuables financent désormais une part relativement moindre des dépenses d'enseignement supérieur,
- que la fonction *"enseignement supérieur"* est considérée comme n'ayant aucune priorité sur les autres fonctions collectives.

On peut penser que ces comportements ne correspondent pas aux préférences véritables de la collectivité et ou bien qu'il est très possible qu'il existe un coefficient implicite λ différent pour chaque C.S.P., ou bien que le coefficient est unique, mais varie en fonction des changements dans le niveau des recettes fiscales.

Un problème voisin, mais cependant différent, est posé par la réduction d'impôt (sour la forme d'une demi-part supplémentaire) accordée aux contribuables qui ont un enfant qui continue des études après 21 ans (et jusqu'à 25 ans). La convention choisie amène à considérer λIR_i comme l'impôt net payé par la catégorie i. On ne peut plus alors faire apparaître spécifiquement, dans les avantages, cette réduction qui est pourtant une redistribution très importante, comme nous avons pu le voir plus haut, à moins de faire figurer du côté des prélèvements, non pas l'impôt, net, mais l'impôt qui aurait été payé si l'enfant n'avait pas été scolarisé (1).

Le problème n'est pas seulement que la seconde présentation est plus didactique. On peut voir en effet, que la méthode adoptée entraîne une erreur de mesure puisque la réduction ainsi opérée agit inégalement sur les différentes catégories i en raison de la progressivité de l'impôt. Il y a donc là une raison supplémentaire de mettre en doute le choix d'un coefficient λ unique pour toutes les C.S.P.

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(1) Les auteurs adoptent cette seconde présentation dans un autre tableau de l'étude de 1972 (page 31), mais ne s'en servent pas pour les calculs.

- le cas des cotisations sociales

L'hypothèse implicite derrière le choix d'un coefficient unique μ est ici que le budget de la sécurité sociale est unique et équilibré, ce qui n'est pas le cas en France.

Un second problème est celui de l'omission des frais d'entretien entrainés par les études. Cette omission constitue une erreur sur le plan logique. Les auteurs l'admettent et justifient leur choix par des considérations pratiques sur les difficultés de faire de telles évaluations. Nous reconnaissons avec eux cette difficulté, mais nous la pensons surmontable, puisque des travaux existent déjà sur ce point. Comme ce coût d'entretien varie nettement d'une C.S.P. à l'autre (à tel point, comme nous l'avons vu, qu'il peut être avantageux pour certaines familles d'envoyer leur enfant à la cantine scolaire alors que cette fréquentation entraîne pour d'autres un supplément de coût) son omission peut dissimuler l'étendue réelle de la redistribution.

Ces critiques sur la méthode ne doivent pas faire oublier qu'il s'agit d'un effort exceptionnel de réflexion synthétique sur ce problème extrêmement complexe et que nous devons être reconnaissants à Y. HORRIERE et P. PETIT de l'avoir mené à bien. Notre sentiment personnel est cependant qu'il est dangereux de mêler l'optique redistributive et l'optique décisionnelle et que si l'on choisit la première, il est inutile et dangereux de mêler les opérations menées par le canal des administrations et les autres. La tâche la plus urgente nous paraît être de procéder à un approfondissement de l'étude méthodologique et statistique des flux de prélèvements et des flux de prestations non seulement par C.S.P., mais selon les autres critères significatifs observés dans l'étude sur les coûts d'éducation à la charge des familles, c'est-à-dire la filière suivie par l'enfant, la taille de la famille et sa localisation.

b) Les résultats chiffrés et leur intérêt

Nous nous contenterons de reproduire ici le tableau indiquant le rapport entre prestations et prélèvements par Catégorie socio-professionnelle qui résume l'ensemble de l'étude.

TABLEAU XI : COMPARAISON DES PRESTATIONS ET DES PRELEVEMENTS DES ADMINISTRATIONS PAR C.S.P.

Années 1965-1967-1970.

		Fraction prélevée moy. par ménage	Fraction prél. moy. par étudiant	Prestations / Prélèvements
AGRICULTEURS	1965	0,72	1,19	0,92
	1967	0,73	0,98	1,15
	1970	0,77	0,77	1,53
SALARIES AGRICOLES		0,52	1,88	0,59
		0,56	1,63	0,78
		0,57	1,16	1,08
INDUSTRIELS		4,81	0,82	1,03
		4,65	0,80	1,03
		4,22	0,80	1,03
ARTISANS		1,52	1,27	0,83
		1,55	1,08	0,92
		1,45	1,07	0,96
MOYENS & GROS COMMERCANTS		3,20	0,96	0,98
		3,15	0,98	0,92
		2,89	1,14	0,81
PETITS COMMERCANTS		1,57	1,14	0,84
		1,60	1,10	0,85
		1,50	0,96	0,98
PROFESSIONS LIBERALES		5,85	0,43	2,15
		5,74	0,42	2,10
		4,95	0,40	2,14
PROFESSEURS		2,96	0,38	2,91
		3,08	0,39	2,72
		2,85	0,34	2,87
INGENIEURS		2,70	0,45	2,24
		2,65	0,42	2,32
		2,42	0,43	2,27
CADRES SUPERIEURS		2,80	0,67	1,36
		2,76	0,63	1,40
		2,53	0,58	1,47
INSTITUTEURS		1,58	0,53	2,19
		1,57	0,54	2,01
		1,53	0,66	1,64
TECHNICIENS		1,68	1,02	1,11
		1,61	1,00	1,04
		1,57	0,97	1,02

TABLEAU XI, suite

	Fraction prélevée moy. par ménage	Fraction prél. moy. par étudiant	Prestations / Prélèvements
CADRES MOYENS	1,67	0,59	1,57
	1,52	0,60	1,54
	1,50	0,65	1,43
EMPLOYES DE BUREAU	1,02	1,05	1,09
	1,06	0,97	1,08
	1,05	0,96	1,09
EMPLOYES DE COMMERCE	1,02	0,52	2,11
	1,06	0,54	1,97
	1,05	0,52	1,97
CONTREMAITRES	1,29	1,36	0,86
	1,24	1,16	0,92
	1,27	1,04	0,97
OUVRIERS QUALIFIES	0,94	3,11	0,39
	0,95	2,62	0,45
	0,99	2,27	0,51
OUVRIERS SPECIALISES	0,79	2,80	0,43
	0,85	2,55	0,46
	0,86	1,89	0,58
MINEURS	0,91	3,17	0,43
	0,83	1,64	0,68
	0,63	0,87	1,18
MANOEUVRES	0,65	5,14	0,28
	0,81	3,69	0,32
	0,80	3,42	0,35
PERSONNEL DE SERVICE	0,71	1,54	0,57
	0,86	2,50	0,44
	0,85	2,69	0,47
AUTRES CATEGORIES	1,14	0,40	2,32
	1,32	0,57	1,69
	1,28	0,78	1,22
INACTIFS	0,48	1,92	0,40
	0,40	4,75	0,24
	0,47	11,61	0,17

SOURCE : Y.HORRIERE et P. PETIT : "Effets redistributifs immédiats de l'enseignement supérieur : analyse comparative des années 1965,1967 et 1970". Juin 1973 - p. 49.

Ce tableau montre d'une part que *le rapport entre prestations et prélèvements varie beaucoup d'une C.S.P. à l'autre.* On peut en effet opérer le classement suivant pour 1965 :

Catégories nettement favorisées

- Professeurs ;
- Autres personnes actives;
- Ingénieurs ;
- Professions libérales ;
- Instituteurs ;
- Employés de commerce ;
- Cadres moyens ;
- Cadres supérieurs ;

Categories neutres

- Moyens et gros commerçants ;
- Industriels ;
- Contremaîtres ;
- Techniciens ;
- Employés de bureau ;
- Petits commerçants ;
- Artisans ;
- Exploitants agricoles ;

Catégories nettement défavorisées

- salariés agricoles ;
- personnel de service ;
- Mineurs ;
- Inactifs ;
- Ouvriers spécialisés ;
- Ouvriers qualifiés ;
- Manoeuvres ;

Ce classement n'est pas étonnant. En effet, les prestations par tête d'étudiant varient beaucoup moins d'une famille à l'autre, que les prélèvements qui sont directement liés au taux de fréquentation de l'enseignement supérieur par les enfants de chaque C.S.P.

Ceci mérite d'être souligné car c'est l'indication que tant que les enfants des classes les plus modestes fréquenteront en très petit nombre l'enseignement supérieur, seule une réorganisation vraiment radicale du système d'aides pourrait retourner la situation en leur faveur. Par exemple, nous observons en 1965 que les familles de manoeuvres versaient 22 458 F. par tête d'enfant étudiant dans l'enseignement supérieur alors qu'elles ne recevaient que 6 696 F. Dans ces conditions, il aurait fallu quadrupler les aides à cette catégorie pour qu'elle commence à être un peu bénéficiaire de la redistribution. A l'autre extrême, les familles d'ingénieurs ne versaient que 1 902 F par tête d'étudiant et touchaient 4 670 F. On voit que les prestations qu'elles recevaient étaient certes moins fortes que celles que percevaient les familles de manoeuvres mais de 2 026 F seulement, alors que les prélèvements qu'elles subissaient étaient de 20 556 F. inférieurs à ceux exercés sur les familles de manoeuvres.

Il faut cependant se garder d'interpréter ces chiffres dans une

optique décisionnelle. Par exemple, il serait absurde d'en tirer argument pour recommander un financement des études supérieures par l'emprunt sous prétexte que le financement par l'impôt favorise les C. S. P. les plus aisées. En effet, il faut distinguer les familles qui ont un enfant étudiant et les familles qui n'en ont pas. Le gain moyen tiré par chacune de ces dernières de ce changement serait égal à $\frac{\lambda \ I \ R \ i}{Mi} + \frac{\lambda \ I \ D \ i}{Mi}$ où Mi est le nombre de ménage de catégorie i.
Or, si nous considérons les familles de manoeuvres, nous savons que les impôts sur le revenu qu'elles paient sont très réduits si bien que $\frac{\lambda \ I \ Ri}{Mi}$ peut être considéré comme négligeable. $\frac{I \ D \ i}{Mi}$ doit certes être plus élevé, mais, compte tenu de la faible part représentée par l'enseignement supérieur dans les dépenses publiques, le coefficient λ est si faible que le gain par famille ne serait pas très sensible.

Quant aux familles qui ont des enfants scolarisables, le passage d'un financement par l'impôt à un financement par l'emprunt signifie pour elles la perte de prestations importantes.

On peut donc dire qu'un financement par l'emprunt, même accompagné d'une baisse correspondante de la fiscalité n'aboutirait à renverser la situation de redistribution à l'envers que l'on observe qu'en faisant disparaître tous les enfants de manoeuvres de l'enseignement supérieur. Seul, un impôt affecté, touchant seulement les classes favorisées, permettrait de changer le sens des transferts. Mais, il ne favoriserait même pas l'accès des enfants de manoeuvres à l'enseignement supérieur à cause de la modicité de l'avantage fourni à chaque famille.

La seconde observation que l'on peut tirer du tableau est que *l'évolution des effets redistributifs de l'enseignement supérieur entre 1965 et 1970 est dans l'ensemble faible mais inégale selon les groupes*. Ainsi, on remarque que six catégories ont vu leur rapport $\frac{\text{Prestations}}{\text{Prélèvements}}$ se modifier de façon considérable en 5 ans. Trois d'entre elles ont connu une amélioration : les agriculteurs, les salariés agricoles, et les mineurs. Au contraire, les instituteurs, les autres catégories et les inactifs ont vu leur situation relative se détériorer. Pour trois de ces catégories, les résultats sont peu significatifs. Deux d'entre elles (salariés agricoles, mineurs) envoient trop peu d'étudiants dans l'enseignement supérieur, la troisième (autres catégories) a vu sa définition modifiée entre ces deux dates. Les exploitants agricoles, quant à eux, ont "bénéficié" de la diminution du nombre de ménages qui a entraîné une baisse des prélèvements mais également une augmentation des prestations, en particulier de bourses plus avantageuses. Les instituteurs voient les prélèvements augmenter avec leur nombre et les prestations diminuer à cause d'une baisse relative de leur participation à l'enseignement supérieur. Enfin, les inactifs sont une catégorie trop hétérogène pour qu'on puisse tirer des conclusions sur leur cas. On note par ailleurs que toutes les catégories d'ouvriers voient leur situation s'améliorer à la suite de l'augmentation des prestations, ce qui reflète l'augmentation de leur taux de participation (1).

On note enfin qu'il y a très peu de changements d'ensemble dans le groupe favorisé et dans le groupe neutre. La poursuite de la comparaison pour des années postérieures devrait donc être très instructive.

En conclusion, on peut donc dire que les travaux sur les liens entre éducation et égalité se développent désormais en France à un rythme rapide et que, si leurs résultats sont encore parcellaires et souvent peu comparables, cette situation devrait évoluer rapidement vers le mieux.

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(1) ce résultat contredit lui aussi la thèse de BOURDIEU et PASSERON.

Mieux Comprendre la Relation Education-Egalité en France

Remarques à propos du rapport

de

Jean-Claude Eicher et Alain Mingat

par

Raymond Boudon

Le rapport des Professeurs Eicher et Mingat reflète, je crois, fidèlement et de manière aussi exhaustible qu'il était possible de le faire en un nombre nécessairement limité de pages l'état des recherches françaises sur le problème des relations entre égalité et éducation en France. Il faut aussi souligner leur effort et les en remercier pour présenter simultanément et comparer les analyses des sociologues aussi bien que des économistes sur le difficile problème des relations entre égalité et éducation. Une des sources principales de la lenteur des progrès dans ce domaine réside sans doute dans une certaine mesure dans le fait que économistes et sociologues tendent à s'ignorer réciproquement. Une telle ignorance n'est certainement pas le fait du rapport de MM. Eicher et Mingat. Je souhaiterais pour ma part que les sociologues français de l'éducation en prennent largement connaissance.

Je voudrais dans les quelques remarques qui suivent poser un certain nombre de questions qui viendront, je l'espère, prolonger utilement les analyses de MM. Eicher et Mingat. Etant moi-même sociologue, ces remarques tendront à mettre en évidence quelques points où le mode de pensée sociologique est susceptible d'éclairer et de compléter les analyses de type économique relatives au problème de la relation entre égalité et éducation. Lorsque je parle de mode de pensee sociologique, j'exclus une partie quantitativement importante de la production sociologique française, à savoir les théories qu'on peut qualifier de "radicales" selon laquelle les phénomènes d'inégalité seraient dus dans leur ensemble à ce que la "classe dominante" en tire profit et est capable de les imposer à la "classe dominée".

Ces théories me paraissent incapables d'expliquer un certain nombre de faits empiriquement évidents: baisse de l'inégalité des chances devant l'enseignement en France dans les dernières décennies (l'inégalité des chances devant l'enseignement étant définie à partir de l'ensemble des probabilités conditionnelles donnant le niveau d'instruction atteint en fonction de l'origine sociale); échec relatif de certaines mesures ou réformes: ainsi, vers le milieu des années 1960 des efforts ont été faits pour tenter de réduire la proportion des étudiants en lettres (humanités) par rapport aux étudiants en science, mais le succès a été plus que limité, puisque le nombre des étudiants en lettres a continué à croître plus rapidement (ce phénomène n'étant d'ailleurs pas propre à la France); de même la création d'instituts d'enseignement supérieur court n'a pas obtenu le succès escompté, le nombre d'étudiants ayant pris une inscription dans ces instituts s'étant révélé au moins au début de l'expérience très inférieur aux espoirs. Ces trois catégories de faits suffisent à montrer que le prétendu contrôle de l'autorité politique et des élites sur la structure de la demande d'éducation qu'introduisent les théories "radicales" représente une hypothése difficile à admettre. De plus, elle est peu utile puisqu'elle permet seulement de conclure à la proposition vague selon laquelle la classe dominante est capable d'imposer un certain degré d'inégalités. En vérité, nombre de mes objections aux théories de ce type rejoignent celles que le Professeur Lindbeck (L'économie selon la Nouvelle Gauche, Paris, Mame, 1973) a adressées à certaines théories économiques radicales. L'hypothese coûteuse et irréaliste selon laquelle les préférences des sujets sociaux et économiques peuvent être aisement manipulées caractérise a la fois certaines analyses radicales des effets de la publicite par exemple et l'analyse selon laquelle la structure de la demande d'éducation résulte essentiellement d'une manipulation de cette demande par la classe dominante (ruling class).

Faisant abstraction de ce type de théories, il me semble que le sociologue peut poser à l'économiste un certain nombre de questions utiles.

I. Ma première question concerne les mécanismes générateurs de l'inégalité des chances devant l'enseignement. Il me semble que les travaux de Gary Becker (Human Capital) et de nombreux economistes de l'éducation conduisent a une théorie simple et utile de l'origine de l'inegalite des chances devant l'enseignement. C'est, me semble-t-il, une variation sur cette théorie simple qui est présentee dans le rapport de MM. Eicher et Mingat. Dans sa forme la plus élémentaire possible, cette théorie enonce que:

1. Un individu décide (au-delà de la période de scolarité obligatoire) de se maintenir une année supplémentaire dans le système d'enseignement si le coût ainsi encouru (en termes de dépenses directes non couvertes par les bourses et transferts fiscaux et aussi en termes

de revenus non encaissés - foregone earnings) est au plus égal au flux supplémentaire de revenu qu'il peut espérer obtenir de cette année supplementaire. Naturellement, c'est la valeur actualisée de ce flux supplémentaire qui est prise en considération;

2. Que le taux d'actualisation (discount rate) est une fonction décroissante du revenu présent: plus le revenu présent est élevé, plus le taux d'actualisation est bas. Le sociologue donnerait sans doute à cette proposition une forme plus générale: il dirait que le taux d'actualisation des récompenses sociales à venir (en termes non seulement de revenu, mais aussi de statut social, de prestige, etc..) est une fonction décroissante du statut social et, s'agissant d'un jeune adolescent, du statut social de sa famille. Mais il admettrait la proposition. En effet, il apparaît évident que si j'emprunte un dollar ou un franc à un pauvre il exigera normalement un taux d'intérêt plus élevé que le riche. En conséquence, le taux d'actualisation du "pauvre" sera plus élevé que celui du "riche". Bien que cette proposition apparaisse comme évidente, elle est de nature empirique: il y aurait donc avantage à chercher à la tester empiriquement. Cela fournirait un terrain de recherche précis à une recherche interdisciplinaire incluant économistes et sociologues. Une telle recherche aurait l'intérêt non seulement de vérifier que les taux d'actualisation varient avec le revenu ou le statut social. Elle permettrait aussi de mettre en évidence d'éventuels effets culturels chers au sociologue: on observerait peut-être par exemple que les paramètres de la fonction liant les taux d'actualisation au revenu (ou au statut social) présent varient d'une société à l'autre.

Des propositions 1 et 2, on déduit l'existence du phénomène de l'inégalité des chances devant l'enseignement : le "pauvre" ayant, par rapport au "riche", tendance à sous-estimer le revenu additionnel tiré d'une année d'éducation en raison des différences dans les taux d'actualisation, il faudrait pour qu'il y ait égalité dans la demande d'éducation du riche et du pauvre que le coût d'une année supplementaire d'éducation soit plus faible pour le second. Or, comme le montrent bien MM. Eicher et Mingat, l'imperfection des transferts fiscaux font qu'une année supplémentaire d'éducation est en réalité plus coûteuse pour le pauvre que pour le riche. Sur ce point, il faut souligner avec les auteurs du rapport la particularité du système du "quotient familial" dans le cas français : ce système rend l'allègement fiscal dont bénéficient les familles qui ont un enfant a l'école proportionnel au revenu de la famille.

La théorie économique brièvement esquissée ci-dessous rend compte du fait, bien souligné par les auteurs du rapport, que les inégalités devant l'enseignement apparaissent, en France comme ailleurs, beaucoup plus importantes que les inégalités qui résulteraient de la différence dans la distribution des compétences (mesurées par un instrument conventionnel comme le QI ou par la "réussite scolaire" en début de scolarité) en fonction du statut socio-professionnel du chef de famille. Je crois personnellement une théorie de ce type beaucoup plus utile que la théorie culturaliste selon laquelle la demande d'éducation varierait en fonction du statut socio-professionnel (socio-occupational status) de la famille parce que les familles, selon leur place dans la hiérarchie sociale, auraient des attitudes différentes quant à l'utilité de l'éducation pour la réussite sociale.

On déduit de la théorie "économique" précédente que, dans le cas ou les transferts fiscaux seraient suffisants pour rendre le coût d'une année supplémentaire d'éducation plus léger pour le "pauvre" que pour le "riche" et compenser les effets inégalitaires dûs aux différences dans les taux d'actualisation, les inégalités devant l'enseignement seraient sensiblement réduites. Etant donné l'importance pratique de cette conclusion, il importe de se demander s'il est certain qu'une correction massive des transferts fiscaux, à supposer qu'elle soit possible, conduirait bien aux effets escomptés quant à l'inégalité devant l'enseignement.

J'ai pour ma part développé (*L'inégalité des Chances*, Paris, Colin, 1973; *Education, Equality and Social Opportunity*, New York, Wiley, 1974) une théorie d'inspiration à la fois économique et sociologique qui conduit à une conclusion différente. Cette théorie s'appuie sur un certain nombre de recherches sociologiques empiriques. Elle énonce que, lorsqu'un individu se demande s'il doit prolonger sa scolarité d'une année, non seulement le coût et le bénéfice actualisé rentrent en ligne de compte, mais aussi la comparaison entre, d'une part le statut social (ou le revenu, dans une version restrictive de la théorie) qu'il peut espérer obtenir avec son niveau de scolarité présent et, d'autre part, le statut de sa famille. Très simplement, l'hypothese est que, toutes choses égales d'ailleurs, si un individu a déjà atteint un niveau de scolarité qui lui permet d'espérer un statut social supérieur à celui de son pere, le bénéfice tiré d'une année supplémentaire d'éducation sera perçu comme moins important par lui que par un individu dont le père a un statut social très élevé: pour ce dernier individu, une année supplémentaire d'éducation peut ne pas être suffisante à lui garantir un statut social égal à celui de son père. Cette hypothèse soulève, bien sûr, la difficulté de la comparaison interpersonnelle des utilités. Mais il est difficile de rendre compte d'un certain nombre d'observations régulierement recueillies par les sociologues si on ne l'introduit pas. On peut, grossièrement, formaliser cette théorie de la façon suivante:

Soit (supposant le statut social une variable de même type logique que le revenu)

C , le coût d'une annee supplémentaire d'enseignement

S_0 , le statut social qu'il est raisonnable pour un individu d'espérer étant donné son niveau d'éducation d'ores et déjà acquis

ΔS_t , le supplement de statut que l'individu peut espérer, dans t années, d'une année supplémentaire d'education maintenant

S_p , le statut de son père

$r(S_p)$, le taux d'actualisation (dependant du statut du père)

k , un coefficient positif a estimer

De nouveau, je suppose que le statut peut être assimile à une variable quantitative comme le revenu et combinant, outre le revenu, un ensemble d'autres recompenses (rewards) sociales possibles (prestige, etc..). La theorie qui vient d'être esquissee peut être grossièrement résumée par la condition

$$c < \sum \frac{\Delta S_t}{[1 + r(S_p)]^t} - k(S_o - S_p) \qquad (1)$$

Par contraste, la théorie discutée précedemment serait résumée par

$$c < \sum \frac{\Delta S_t}{[1 + r(S_p)]^t} \qquad (2)$$

Les deux théories divergent sur un point important : de la seconde (2), on déduit que si le coût d'une année supplementaire d'éducation est rendu plus léger pour le "pauvre" de manière a corriger les effets des différences dans les taux d'actualisation, l'inégalite devant l'enseignement sera considerablement réduite. La première théorie (1) aboutit à une conclusion plus pessimiste. En effet, un adolescent d'une famille "pauvre" peut, même si sa famille est subventionnée pour lui offrir une année supplémentaire d'éducation, considérer que son niveau d'éducation actuel lui permet de s'élever suffisamment au-dessus du statut de sa famille. Dans ce cas, $k(S_o - S_p)$ est négatif, tandis que la même quantité serait positive pour un adolescent issu d'un milieu élevé et dont le statut espéré S_o serait inférieur à celui de son père. Même si les effets des différences dans les taux d'actualisation sont socialement corrigés, il est donc possible que cette correction soit insuffisante étant donnée l'influence de $k(S_o - S_p)$.

Cet effet, bien connu en sociologie, traduit l'idée que les aspirations d'un individu tendent à être déterminées non de manière absolue, mais par référence aux groupes sociaux auxquels il appartient. Comme cet effet se répète d'une année à l'autre (l'adolescent étant supposé décider chaque année s'il passera l'année suivante dans le système d'enseignement), il est par nature exponentiel et peut par conséquent contribuer à maintenir un taux élevé d'inégalité dans la demande d'éducation, même lorsqu'on suppose que les effets des différences dans les taux d'actualisation ont été éliminés.

Les recherches sociologiques suggèrent qu'un effet de "groupe de référence" comme celui qui est décrit par la quantité $k(S_o - S_p)$ n'est pas dénué de fondement empirique. Ainsi, on a observé que le niveau d'aspiration socio-professionnelle d'étudiants semblables par leur réussite scolaire est, quel que soit l'âge, dépendant du statut socio-professionnel de leur milieu d'origine (orientation family). Quoi qu'il en soit il me paraît important d'essayer de mieux saisir ce type d'effets. La formalisation grossière qui précède a pour but de suggérer qu'ils peuvent être introduits dans les modèles du type de ceux qu'utilisent les économistes.

Comme je l'ai dit en commençant, la qualité du rapport de MM. Eicher et Mingat est telle que je n'ai pas grand'chose à ajouter à leur évaluation des recherches françaises récentes sur le problème de la relation entre éducation et égalité. C'est pourquoi la discussion précédente vise surtout à préciser certaines directions de recherches qui pourraient se révéler fécondes dans l'avenir. La résistance des enfants et des familles à l'allongement de la scolarité obligatoire (phénomène très insuffisamment observé), le fait que, d'après les sondages les jeunes gens qui ont accédé à un niveau d'éducation modeste déclarent dans une forte proportion ne pas regretter de ne pas avoir eu une scolarité plus longue donnent également à penser que l'hypothèse introduite par la théorie (1) ci-dessus a quelque validité. Malheureusement, ces phénomènes sont très mal connus et il ne semble pas qu'une comparaison entre la France et d'autres pays soit à cet égard possible à l'heure présente.

II. Un second point qui, à mon avis, mériterait d'être mieux exploré qu'il ne l'est dans les recherches présentes en France est celui des effets complexes du développement du système d'éducation et de l'atténuation des inégalités devant l'enseignement qui l'accompagne sur les autres formes d'inégalités sociales (inégalités des chances sociales ou héritage intergénérationnel du statut social, inégalites de revenu, etc.) en même temps que sur la production de biens collectifs tels que l'accroissement de la productivité et la croissance économique. En ce qui concerne ce dernier point, je parle en néophyte (layman) et mes observations doivent être affectées d'un fort coefficient personnel. Mais je ne suis pas sûr que nous connaissons bien, en ce qui concerne la France, les effets de l'éducation sur la croissance et sur l'augmentation de la productivité. Mon impression est que nous savons seulement que le coefficient de régression partielle du développement de la productivité sur le développement du stock d'éducation est positif, sans être véritablement en mesure de donner une signification causale aux résultats obtenus par l'analyse de régression. Les travaux d'Ivar Berg aux Etats-Unis, étant mis à part leur caractère polémique, devraient stimuler les chercheurs français à s'interroger sur les effets réels du développement du système d'éducation sur la productivité.

J'abandonne immédiatement ce terrain sur lequel je me sens peu sûr et qui, à première vue, n'a pas de rapport direct avec le problème de la relation entre éducation et inégalité. Pourtant, le problème des effets de l'éducation sur la production de biens collectifs tels que la croissance ou l'augmentation de la productivité est essentiel. En effet, nombre de recherches récentes aboutissent à des conclusions pessimistes sur les effets égalitaires du développement du système d'éducation et de l'atténuation de l'inégalité des chances devant l'enseignement. Si ces conclusions sont valides, la justification d'une politique d'égalité en matière d'éducation réside principalement dans son efficacité par rapport à la production des biens collectifs ci-dessus mentionnés et d'autres (augmentation de la participation politique, du niveau de comprehension des problèmes sociaux, etc.)

Considérons d'abord les effets de l'attenuation de l'inégalité des chances devant l'enseignement et, de manière générale, du développement du système d'enseignement (augmentation générale de la demande d'éducation) sur l'intensité de l'héritage social entre générations ou, pour utiliser le langage habituel des sociologues, sur l'immobilite sociale entre générations. En termes communs, est-ce que l'atténuation de l'inégalité des chances devant l'enseignement est susceptible d'atténuer l'intensité de l'heritage social intergenérationnel? C'est là évidemment une question de toute première importance, car, sauf si on suppose que l'éducation est essentiellement un bien de consommation, il est essentiel de savoir si l'atténuation de l'inégalité des chances devant l'enseignement contribue à diminuer l'héritage intergénérationnel du statut socio-professionnel. En d'autres termes, un individu issu d'une classe sociale defavorisée n'accordera d'importance à une diminution de l'inégalite des chances devant l'enseignement que s'il a le sentiment qu'elle entraîne aussi une diminution de l'heritage social. Sinon, il faut supposer qu'il a par rapport à l'éducation une vue purement hedoniste, c'est-à-dire qu'il considère l'éducation comme un plaisir en soi, comme un bien de consommation, n'ayant pour lui qu'une valeur d'usage. Il est clair qu'une telle conception contredit non seulement les vues des réformateurs scolaires (ainsi pour les réformateurs français de la IIIeme Republique, fortement influencés par le sociologue Durkheim, le développement de l'éducation etait essentiellement un moyen de promouvoir l'égalité sociale), mais egalement celle des individus, pour qui l'éducation est sans doute bien davantage un bien d'investissement qu'un bien de consommation. Admettons qu'il en soit ainsi, la question essentielle est alors de savoir dans quelle mesure une distribution plus égalitaire de ce bien d'investissement entraîne une distribution plus égalitaire du bien de consommation qu'est le statut social. De nouveau, je mets à part les effets de l'atténuation de l'inégalité devant l'enseignement sur la production de biens collectifs.

Ainsi que le soulignent MM. Eicher et Mingat dans leur rapport, la réponse à cette question est loin d'être simple. L'intuition nous conduit à conclure qu'en augmentant l'égalité devant l'enseignement, on diminue *ipso facto* l'intensité de l'héritage inter-générationnel du statut social. Mais cette conclusion intuitive est trop simple. Il faut voir en effet qu'une diminution de l'inégalité devant l'enseignement s'accompagne nécessairement dans les sociétés libérales d'une augmentation considérable de l'offre des compétences sur le marché de l'emploi : la réduction des inégalités devant l'enseignement ne coïncide pas avec une *restriction* dans le temps de la proportion des adolescents d'origine sociale supérieure qui atteignent par exemple le niveau universitaire, mais avec une *augmentation* de la proportion des adolescents d'origine moyenne ou inférieure qui atteignent ce niveau. De manière générale, étant donné que le niveau scolaire final atteint par un adolescent dépend d'une suite de décisions prises par lui de prolonger sa scolarité, étape après étape, au-delà de la période de scolarité obligatoire, l'augmentation dans le temps de la demande globale d'éducation **peut** être considérée comme régie par un processus de nature exponentielle. Ainsi, si la probabilité pour qu'un adolescent appartenant à une famille de statut social S_p "survive" une année de plus dans le système d'éducation au-delà de la période de scolarité obligatoire est égale à $P(S_p)$, la probabilité pour qu'il survive dans le système x années au-delà de la période de scolarité obligatoire peut grossièrement être supposée égale à

$$\left[P(S_p) \right]^x \left[1 - P(S_p) \right]$$

En utilisant ce modèle, j'ai obtenu (cf. *L'Inégalité des Chances, op. cit.*) des conclusions qui rendent grossièrement compte des tendances statistiques empiriquement observées en ce qui concerne l'évolution dans le temps de la demande d'éducation dans plusieurs pays occidentaux.

Une conséquence générale de ce modèle est que, une fois atteint un certain niveau de développement de la demande d'éducation, l'augmentation globale dans le temps de cette demande est d'autant plus rapide qu'on considère des niveaux d'éducation plus élevés. Ce résultat est confirmé par le remarquable travail entrepris à la fin des années 1960 par l'OCDE (cf. la série des rapports de base pour la *Conférence sur les politiques d'expansion de l'enseignement*), d'où il ressort que, dans tous les pays ayant atteint un niveau élevé de développement de leur système d'enseignement, l'augmentation de la demande d'éducation croît d'autant plus rapidement qu'on considère des niveaux scolaires plus élevés.

Ce qui nous importe ici, c'est la portée de ce résultat par rapport au problème de l'effet de la réduction de l'inégalité devant l'enseignement sur l'intensité de l'héritage social. Supposons, comme cela semble avoir été le cas empiriquement dans les sociétés occidentales dans les deux dernières décennies, que le déplacement dans le temps de la structure sociale (distribution des statuts socio-professionnels) n'ait pas suivi l'évolution de la distribution du stock d'éducation. En d'autres termes, admettons que la distribution dans le temps des emplois (job openings) a manifesté une certaine inertie par rapport au changement rapide dans la distribution des compétences offertes (ces compétences étant mesurées par le niveau scolaire). Qu'en résulte-t-il du point de vue de l'évolution dans le temps de l'intensité de l'héritage social? Qu'en est-il résulté empiriquement?

Bien que la réponse à cette question suppose l'utilisation d'un modèle relativement complexe que j'ai présenté dans l'ouvrage ci-dessus mentionné et que je ne puis développer dans son détail dans cette note, il est possible de décrire, à un niveau conceptuel, la logique de cette réponse:

1. Dans le temps (c'est-à-dire pour des cohortes successives), les adolescents d'origine sociale supérieure ont augmenté leur demande de scolarisation, mais cette augmentation a été moins rapide que l'augmentation de la demande des adolescents d'origine sociale moyenne, laquelle a été à son tour moins rapide que l'augmentation de la demande des adolescents d'origine inférieure (pour simplifier, on suppose trois catégories ordonnées de statuts d'origine). Cette proposition correspond à l'observation empirique selon laquelle l'inégalité des chances devant l'enseignement a régulièrement décru dans tous les pays occidentaux et en France en particulier dans les deux dernières décennies.

2. Si on suppose, comme cela semble empiriquement réaliste de le faire d'après les données dont nous disposons que la structure des opportunités d'emploi (job openings) en fonction du statut social qui leur est associé n'a pas évolué avec la même vitesse, il en résulte une diminution relativement complexe des espérances sociales attachées à chaque niveau scolaire. (1) Ainsi, les adolescents d'origine sociale supérieure ont atteint plus fréquemment, pour des cohortes successives, les niveaux d'éducation supérieurs, mais une partie non négligeable d'entre eux atteignait à la fin de la période couverte par les statistiques de l'OCDE ci-dessus mentionnées au niveau scolaire intermédiaire. A ce niveau intermédiaire s'attachent dans le temps des espérances sociales déclinantes. D'où un phénomène de compensation qui explique que, empiriquement, la proportion des adolescents d'origine sociale supérieure qui atteignent un niveau social équivalent à celui de leur père, ainsi que la proportion des adolescents en mobilité descendante apparaissent comme relativement très stables dans le temps.

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1) Cette dévaluation des espérances en fonction du niveau scolaire a la forme d'une courbe en U dont la déformation dans le temps est relativement complexe.

> Le modele mentionné conduit aux mêmes conclusions pour les adolescents provenant, par leurs origines, des autres types de catégorie sociale. Dans tous les cas, les proportions de mobiles ascendants et descendants comme la proportion des individus en situation de stabilité sociale intergénérationnelle pour chaque type de statut social d'origine restent pratiquement constantes pour des cohortes successives.

Ce résultat pose un problème considérable : il montre qu'il ne faut pas se faire trop d'illusions sur les effets égalitaires par rapport à la mobilité sociale intergénérationnelle du développement de la demande d'enseignement et de la diminution de l'inégalité des chances devant l'enseignement. L'égalisation des chances devant l'enseignement n'entraîne pas nécessairement une réduction de l'héritage social intergénérationnel du statut social. Ces résultats sont concordants avec les données de toutes les études empiriques de mobilité sociale concernant les pays occidentaux : la structure de la mobilité sociale apparaît comme très stable dans le temps. En ce qui concerne la France, je n'ai malheureusement pas eu le loisir de comparer à cet égard les résultats de l'enquête INSEE 1970 (R. Pohl, C. Thélot et M.F. Jousset, *L'enquête formation-qualification professionnelle*, Collections de l'INSEE, 1974 D) à l'enquête INSEE 1964.

De même, il est facile de montrer que, si le niveau d'instruction est, dans une certaine mesure, effectivement considéré en moyenne par l'employeur comme une mesure de "capital humain", si, en d'autres termes, pour un même type d'emploi, deux individus de niveau d'instruction différent tendent à être rémunérés differemment (cette différence tournant naturellement à l'avantage du plus instruit), le développement de la demande d'éducation peut engendrer une augmentation dans l'inégalité de distribution des revenus, toutes choses égales d'ailleurs. Ce résultat, montré par Lester Thurow ("Education and Economic Equality", *The Public Interest*, Eté 1972, 66-81) et que j'ai retrouvé par une autre voie dans l'ouvrage ci-dessus mentionné, indique que, contrairement à l'opinion repandue, l'égalisation des chances devant l'enseignement n'entraîne pas nécessairement, toutes choses égales d'ailleurs, une égalisation des revenus, même si on suppose que le niveau d'instruction est perçu en moyenne par l'employeur comme une mesure de capital humain. Cette opinion courante, comme l'opinion également courante selon laquelle l'égalisation des chances devant l'enseignement devrait entraîner nécessairement une augmentation de la mobilité sociale intergénérationnelle dans le temps repose sur une hypothèse irréaliste, à savoir que le système économique et social peut être considéré comme répondant sans inertie aux changements dans la structure de l'offre des compétences. Très localement, cette hypothèse peut etre vraie: ainsi, l'engoûment des étudiants pour les sciences sociales vers la fin des années 1960 a probablement favorisé la création et le développement d'instituts de recherches publics et privés dans ce domaine et, par conséquent, la création de nouveaux emplois. Dans ce cas, l'offre d'un nombre supplémentaire d'individus ayant des compétences requises a contribué à créer une demande correspondante (dans une certaine mesure). Mais il est probablement très irréaliste de considérer ces phénomènes locaux comme généraux et de supposer que dans son ensemble la structure de l'offre d'emplois s'adapte sans inertie à la demande (cette proposition peut d'ailleurs être établie très simplement empiriquement). Si on supprime cette hypothèse irréaliste et si on suppose que l'évolution dans le temps dans la demande d'éducation se heurte à l'inertie des structures sociales et économiques, on montre facilement qu'il en résulte dans le temps une modification des taux de convertibilité du capital scolaire en statut social et/ou en revenu. On en déduit aussi la conclusion que l'égalisation des chances devant l'enseignement n'entraîne nécessairement, toutes choses égales d'ailleurs, ni l'égalisation des revenus, ni l'égalisation des chances sociales (augmentation de la mobilité sociale intergénérationnelle).

On tire de ces remarques l'idée, bien soulignée par MM. Eicher et Mingat, que, pour mieux comprendre les effets du développement du système d'éducation, en même temps que les effets de l'atténuation de l'inégalité des chances devant l'enseignement, il est nécessaire de développer des modèles plus raffinés que ceux qu'utilisent notamment les sociologues. A cet égard, je pense qu'il est important de prendre conscience à la fois de l'utilité, mais aussi de l'efficacité limitée de modèles tels que la *path analysis* pour l'analyse de ces problèmes. Couramment utilisés dans plusieurs pays d'Europe et en Amérique du Nord (cf. P. Blau et O.D. Duncan, *The American Occupational Structure*; C. Jencks, *Inequality*; Müller et Meyer, *Occupational Career and Social Mobility*, etc..), leur limitation me semble due à ce qu'ils tendent à obscurcir l'effet des variables structurelles sur la relation entre les différentes formes d'inégalités. Leur intérêt est, au total, plutôt descriptif qu'analytique, de sorte que leurs résultats mêmes exigent, pour être valorisés, le recours à d'autres types de modèles.

Une autre conclusion des remarques précédentes est que, s'il est vrai que l'augmentation de l'égalite devant l'enseignement n'entraîne pas nécessairement un effet d'attenuation d'autres formes d'inégalités (héritage social intergénérationnel, inégalité de distribution des revenus), il est essentiel de connaître avec davantage de précision les effets du développement de l'éducation sur la production de biens collectifs comme la croissance de la productivité.

III. Je souhaiterais enfin brièvement aborder un troisième point, moins directement évoqué par MM. Eicher et Mingat, probablement parce que peu de recherches ont éte entreprises en France a cet egard, c'est celui de l'analyse des effets des mesures institutionnelles sur l'évolution de la demande d'éducation et sur les changements dans la structure de cette demande (représentation différentielle des couches sociales dans l'évolution de la demande). C'est là certainement un terrain ou économistes et sociologues pourraient utilement se rencontrer.

Pour illustrer ce point, je reprendrai un exemple brièvement évoqué plus haut. En France, comme dans de nombreux autres pays européens, on a assisté dans les années 1960 à un effort pour développer l'enseignement supérieur court. Il semble que l'accueil rencontré par ces nouvelles institutions auprès de leur public potentiel ait été inférieur aux attentes. Une des motivations qui a sans doute présidé à la création de ces nouvelles institutions est sans doute l'observation selon laquelle une proportion non négligeable d'étudiants engagés dans des études longues de type traditionnel obtenait finalement des rémunérations en termes de statut social et/ou de revenu identiques ou pratiquement identiques aux rémunérations qu'ils auraient pu obtenir à la suite d'une scolarité dont la durée aurait été inférieure de un, deux ans ou même davantage à celle de leur scolarité effective. Il résulte de cette situation des coûts sans contrepartie tangible pour l'individu comme pour la collectivité. A première vue, l'idée d'offrir aux individus la possibilité d'obtenir des rémunérations sociales identiques à celles qu'ils avaient des chances non négligeables d'obtenir dans le système traditionnel, mais à un moindre coût (puisque la durée de scolarité dans les nouvelles institutions était plus faible), pouvait apparaître comme efficace. Pour voir qu'il n'en est pas nécessairement ainsi, considérons un modèle très simple. Imaginons une petite population de 16 étudiants à une période où seul le système traditionnel d'éducation longue existe. On suppose que l'inertie des structures sociales et économiques a eu pour effet que 8 de ces étudiants ont obtenu un statut social élevé et 8 un statut social moyen. Pour fixer les idées admettons que la rémunération sociale obtenue par les premiers est de 4 unités, celle obtenue par les seconds de 2 unités; par ailleurs on admet que le coût des études longues a été de 2 unités. Les 8 premiers ont donc tiré de leur éducation un bénéfice égal à 2 unités; les 8 autres un bénéfice nul. A première vue, il semble opportun de tenter de corriger cette situation dans la période suivante. Imaginons donc qu'à la période suivante on ouvre l'alternative: études longues ou études courtes et que la rémunération et le coût des études courtes soient respectivement égaux à 2 unités et à 1 unité. En théorie, une telle réforme institutionnelle rend possible une meilleure rémunération des individus: l'optimum serait atteint dans le cas où 8 étudiants choisiraient la voie courte et obtiendraient un bénéfice de 1 unité, tandis que les 8 autres obtiendraient un bénéfice de 2 unites en suivant la voie longue. La réforme permet donc en théorie d'aboutir à une meilleure situation au sens de Pareto. En réalité, il n'est pas difficile de voir qu'elle n'entrainera en pratique aucun effet. Supposons en effet qu'une nouvelle cohorte de 16 candidats soit confrontée au choix ouvert par la réforme, que ces candidats s'estiment tous capables de suivre l'une ou l'autre des deux voies, et qu'aucune limitation institutionnelle ne soit opposée à leur libre choix. Dans ce cas, chacun des 16 acteurs a deux stratégies possibles: etudes courtes ou études longues. La strategie "études courtes" assure un bénéfice d'1 unité quel que soit le choix des autres. La stratégie "études longues" assure un bénéfice de 2 unités si 1 ou 2 ou 3 ou ... ou 7 autres acteurs la choisissent, une espérance de

(8/9) x 2 + (1/9) x 0 = 1,8 unités si 8 autres acteurs la choisissent, de (8/10) x 2 + (2/10) x 0 = 1,6 unités si 9 autres acteurs la choisissent, etc. (Voir table ci-dessous). La valeur la plus faible de l'espérance est obtenue dans l'hypothèse où un acteur particulier considère que tous les autres choisissent la stratégie "études longues". Dans ce cas, l'espérance est égale à (8/16) x 2 + (8/16) x 0 = 1. Ainsi, même dans l'hypothèse la plus pessimiste sur le choix des autres, la stratégie "études longues" assure une espérance moyenne égale au bénéfice qu'il est possible de tirer des études courtes. Cela revient à dire que, pour chaque acteur particulier, la stratégie "études longues" domine la stratégie "études courtes"; d'où il résulte que chaque acteur choisira la stratégie "études longues", s'il est rationnel. La réforme n'aura donc aucun effet et la situation sous-optimale précédente persistera. Ce modèle est bien sûr très simple et demanderait à être spécifié. Mais il fournit peut être une ébauche de réponse à la question posée par la déception relative à l'accueil rencontré par l'enseignement supérieur court en France. Si j'ai introduit cette analyse, c'est qu'elle me semble indiquer une voie de recherche où sociologues et économistes pourraient utilement se rencontrer. Sur un problème aussi important que celui des effets d'une réforme institutionnelle cruciale comme l'introduction de l'enseignement supérieur court, nous disposons surtout en France, me semble-t-il, de recherches descriptives fort utiles analysant les motivations, aspirations des étudiants de ce type d'enseignement. Mais il est clair que ces recherches seraient valorisées si elles étaient éclairées par des modèles formels. Le modèle sommaire que j'ai esquissé ci-dessus n'est-il pas structurellement voisin de modèles développés dans le cadre de l'économie des transports, par exemple? Ne rencontre-t-on pas dans ce cas des exemples où les règles institutionnelles conduisent à une utilisation sous-optimale des ressources? Naturellement, le problème de l'éducation est plus complexe. Mais des pièges sociaux (social traps) de structure voisine peuvent y être décelés. De façon générale, l'évaluation des réformes institutionnelles est un champ largement ouvert à la recherche socio-économique et fort peu exploré.

Stratégie d'un candidat quelconque	Bénéfice assuré ou espéré selon que x autres candidats choisissent la stratégie "études longues"								
	x=0	x=1	...	x=7	x=8	x=9	...	x=14	x=15
Etudes courtes	1	1	...	1	1	1	...	1	1
Etudes longues	2	2	...	2	1,8	1,6	...	1,1	1

Comme on le voit, ces quelques remarques avaient pour but de prolonger le rapport de MM. Eicher et Mingat et d'indiquer quelques directions importantes dans lesquelles la recherche pourrait s'engager de manière à aboutir à une meilleure connaissance de la relation entre éducation et égalité en France.

EDUCATIONAL POLICY OPTIONS

LES CHOIX DANS LES POLITIQUES D'EDUCATION

Strategies for Educational Equality

by

Torsten Husén

Education - the "Great Equalizer" or the "Great Sieve"?

Horace Mann, nineteenth century American school reformer, spoke for the liberal opinion of his time when he referred to education as the "Great Equalizer". Education was considered the main instrument whereby the life-chances of those born into humble circumstances could be considerably enhanced. "It does better than disarm the poor of their hostility toward the rich: it prevents being poor ...". The classical liberal philosophy, born under the auspices of the Fathers of the French and American revolutions, on "careers open to the able" (freie Bahn den Tüchtigen) began to be converted into policy. Apart from providing universal elementary education the liberal progressives in Western Europe raised demands for furthergoing education at the secondary level to which access should be determined on the basis of individual merit and not on social background. One of the Founding Fathers, Thomas Jefferson, spoke of the "natural aristocracy" that would emerge once the privileges of the "artificial aristocracy" were dissolved. Inequalities should be heavily reduced by increasing the educational opportunities of those whose inborn ability entitled them to a higher status than that to which they happened to be born. But the reverse process should also take place. In his book, "Thoughts Concerning Social Mobility" (Tankar om ståndscirculationen, 1854) the Swedish liberal Count Torsten Rudenschiöld presented a blueprint for a school system which would promote a maximum social mobility by seeing to it that not only able young people from lower classes were promoted to levels that corresponded to their capacities, but also that upper-class youngsters with limited capacities should obtain humble schooling and be channelled into humble occupations as well (Husén, 1948b). Every citizen should, via his education, be given the social status to which he was entitled by his inherited aptitudes. Somewhat schematically the "social Darwinism" that emerged as educational philosophy could be put like this. By providing formal equality of access to education, i.e. by putting everybody "on scratch", one would guarantee that the ensuing run was a just one. It would document who deserved to win because his achievements were determined by his inherited capabilities and his "will" to use them, and not by arbitrary conditions, such as home background.

Until recently, it was believed that increased participation and free access to further education would almost automatically bring about greater equality in educational attainments and in the long run bring about greater equality of life chances.

On the level of educational policy, the problem was mainly conceived of as one of providing scholarships for the "poor but able" pupils (see, e.g., Burt, 1943). Furthermore, geographical barriers could be removed by establishing furthergoing schools in areas where young people had difficulties in getting access to them.

By the beginning of the 1960's, attention on both sides of the Atlantic was drawn to problems related to early childhood education and to the fact that inequalities had, at the age when the children entered regular schooling, already been established to such an extent that massive programmes of compensatory education were justified for those who had grown up in underprivileged homes. The Headstart programmes in the United States are the best known examples of this attempt to make up for the deficit that socio-cultural underprivileged conditions had created. In Europe, for instance in the Federal Republic of Germany (O.E.C.D, 1972) and in Sweden (Husén, 1971b) the provision of universal pre-school education became an educational top priority. But these strategies have been subjected to skeptical examination by social scientists. Floud and her associates (1956) studied the social class composition of grammar school students in England before and after the 1944 Education Act, which was considered as a "democratic breakthrough" because it removed the fees and made access universal on the basis of competitive entry examinations (the "eleven-plus" examinations). Previously a certain number of places were held open for needy students who were considered capable of profiting from academic education. They were awarded scholarships. Floud and her colleagues found that when all the grammar school places were thrown open for competition the proportion of students from working class families tended to decrease, whereas students from middle class families, who previously could not afford to send those of their qualified children to grammar school, were the ones who were particularly favoured by the new conditions.

However, the main strategy in bringing about greater equality was still considered to be increased participation, particularly in secondary education. It was a policy most easy to employ in an era, such as the one after 1945, when the social demand for education was growing very rapidly. As one contribution to the O.E.C.D. Conference on Policies for Educational Growth in 1970 (O.E.C.D., 1971d), participation statistics pertaining to social background, particularly at the secondary school level, were collated. In their Summary Report of the Conference Frankel and Halsey point out that when policy makers a decade or more ago envisaged a considerable expansion of educational facilities it was "assumed that by making more facilities available, and distributing them properly in the right neighbourhoods and areas, there would be a marked change in the social composition of student bodies, and in the flow of people from the less-favoured classes into the secondary schools and higher educational institutions. This has not happened to the degree expected". (O.E.C.D., 1971b, p.13). They went on to say, "the problem is more difficult than had been usually supposed, and needs, in fact, to be posed in new terms". (Op.cit., p.14). In his Preface to Husén (1972), Gass points out that the big increase in availability and participation in education in the 1950's and 1960's "brought only marginal advances in equality of opportunity" (op.cit., p.7).

The last few years have witnessed not only massive survey research geared to problems related to equality of educational opportunity, but also conceptual clarification of the issues, which has led to certain basic problems being "posed in new terms". (The major studies have been reviewed in Husén, in press). The landmarks in this survey research are the Coleman Report in 1966 on equality of educational opportunity (Coleman et al., 1966), the Plowden survey in England (H.M.S.O., 1967), and the I.E.A. evaluation studies of some twenty countries (Husén, ed., 1967; Comber and Keeves, 1973; Thorndike, 1973; Peaker, in press). These studies have brought in their wake a methodological debate which has led to greater sophistication in conceptualizing the problems. Furthermore, longitudinal data on educational careers and how the latter are related to both social background and subsequent occupational careers have become available and have enabled researchers to study the relationships between social background, education, and occupational success more fruitfully than has been the case in most studies which so far relied on cross-sectional data (Husén et.al., 1969; Douglas, 1964; Douglas et al., 1968).

Two particular events on the social science scene have had a strong impact on the debate related to educational equality. The Winter issue of 1969 Harvard Educational Review carried a long article by psychologist Arthur Jensen (1969) with the challenging title, "How Much Can We Boost I.Q. and Scholastic Achievement?" The answer was given in the very first sentence of the 123 page-long article and read: "Compensatory education has been tried and it apparently failed" (op.cit., p.2). The article is an attempt to review the relevant literature, and the outcome of the examinations is that the deprivation hypothesis, i.e., that socio-cultural circumstances are the main cause behind the handicap with which children from poor milieux come to school does not hold. The main empirical argument is that since "heritability" of I.Q. is about 80, i.e. that 80 per cent of the observed variance in individual differences in cognitive achievements is accounted for by genetic factors, there is not at all the wide margin for educational influences that optimistic environmentalists (see, e.g., Faris, 1961) used to think that they had at their disposal. What particularly exacerbated the controversy was that Jensen devoted much space to showing that the large mean difference in I.Q. (amounting to about one standard deviation) between black and white students was due almost entirely to genetic differences. It should, however, be pointed out that Jensen has contributed very little in terms of his own original research. (The exceptions are studies of "Level 1" and "Level 2" ability, the former being mainly rote memory and the latter more abstract-verbal ability, both of which he finds are differently developed among blacks and whites.)

The heredity-environment issue, as is evident from the policy implications brought out by Jensen, for instance, is not as academic as it might seem after having been a lofty academic exercise for decades (Husén, 1948a). Quite different educational strategies will, as we shall see later, ensue depending upon how the issue is resolved. This explains the furor that was elicited by Herrnstein's (1971) famous article with the innocuous title "I.Q." in the Atlantic Monthly. He begins his article with what was seemingly a strict syllogism:

"1. If differences in mental abilities are inherited, and
2. if success requires those abilities,
3. if earnings and prestige depend on success,
4. then social standing will be based to some extent on inherited differences among people.

True?   False?"

Thus according to his view, there are powerful genetic ingredients not only in intellectual but in social status as well. The more successful the attempts to promote equality of educational opportunity, the larger the portion of individual and group differences in attainment which would be accounted for over the generations by inherited ability. Equalization of opportunity, therefore, contributes to allocating each individual to the position in society where he "belongs" according to his inborn capacity. Herrnstein (1973) in a recent book on "I.Q. in the Meritocracy" has taken this argument to its extreme in making a case for a liberal meritocracy. If society tries to minimize social inheritance - which, indeed, is the explicit aim of social policy in many countries - it will at the same time maximize genetic inheritance. "The biological gap between social classes will grow if the people who rise from lower to higher status are selected for their native ability..." (Herrnstein, op.cit., p.10). The increased "biological gap" is the price one has to pay if one wants to avoid a caste society where a class of dull and unemployable persons on the one extreme and a class of unintelligent but wealthy persons on the other extreme pass on their disadvantages and privileges to the next generation.

But the liberal notion of achieving greater equality of opportunity by removing economic and geographical barriers which prevent access to furthergoing education and by using education as an instrument of enhancing the life-chances of those born into humble circumstances, has in recent years been subjected to critical examinations by radical social scientists; among them Christopher Jencks (1972) and his associates. Their book on "Inequality" typically carries the subtitle "A Reassessment of the Effect of Family and Schooling in America". They have brought together evidence that builds up a massive skepticism toward policies that give education a pivotal role in equalizing life chances of in lifting those who are born into poverty to more worthwhile conditions. In analyzing inequality in educational attainment, Jencks argues that schools per se "have rather modest effects on the degree of cognitive and non-cognitive inequality among adults" (op.cit., p.135). According to his conception schools "serve primarily as selection and certification agencies, whose job is to measure and label people". They are there to "legitimize inequality, not to create it" (ibid.). Thus, the educational system does not promote equality, it perpetuates inequality. It functions as the Great Sieve where the social origin of those who are thrown into it determines whether they will pass through or not.

The most systematic - and indeed, most radical - attacks on the traditional conception of the role played by I.Q. and education in determining an individual's occupational career has been launched by Gintis (1971) and by Bowles and Gintis (1973). In an article in the American Economic Review in 1971, Gintis sets out to study the "mechanisms by which education affects earnings or productivity" (p.266). He challenges the thesis that the "main effect of schooling is to raise the level of cognitive development of students" and that this increased competence would explain the correlation between schooling and earnings. Instead he advances evidence to suggest that the main effect of schooling is to inculcate certain non-cognitive behaviours, a docility syndrome characterized by obedience and discipline, which are paramount to productivity. In Marxist terms, then, the role of the school in a capitalist system is mainly to prepare a docile and disciplined work force that will fit a hierarchically structured society (Bowles and Gintis, 1973).

* * *

In making this rapid sweep over the entire field of educational equality we notice that we have to deal with three kinds of problems:

1. What should be meant by "equality" in the domain of education? Until recently this was regarded simply as a problem of formal equality of access or equality in terms of being put "on scratch" for competition. Recently, the issue has been radicalized by being posed as one of equality of results or attainment and not primarily one of initial opportunity or access.
2. What are the "facts" in terms of which factors and in which proportion account for existing inequalities? How much is accounted for by genetic and environmental factors, respectively. Can their relative importance be assessed by some kind of index of "heritability"?
3. How should "facts" ascertained according to a given definition of equality be translated into educational policy?

In other words, the existing body of research has sooner or later to be assimilated by a given political philosophy and at this point the real controversy begins. The policy implications have, as is evidenced by the debate ensuing from the Jensen and Herrnstein publications, strong repercussions on how the problems are conceived at the two other levels. Different political philosophies have different interpretations of what should be meant by equality. They also interpret the "facts" differently.

Before embarking upon an attempt to spell out educational strategies that will be conducive to greater equality in terms of opportunity and results, it would seem useful to survey briefly the three problem areas that we have roughly delineated.

Equality of Opportunity and Equality of Results

As noted above, historically, educational equality has been conceived of as equality of opportunity or access. In order to provide those who belong to the "natural aristocracy" with an opportunity to obtain an education that matches their native capacity, steps should be taken to bring them to the appropriate educational institutions. Removal of financial and geographical barriers seemed to be the evident policy. This kind of egalitarianism is referred to by Frankel (1973) as a "corrective" one: society tries to rectify those circumstances that prevent able young people from getting the education for which, by their inborn capacity, they are qualified.

The debate which followed, not only in the United States, in the wake of the so-called Coleman Report (Coleman et al., 1966), brought the conceptualization of equality up to a higher level (Coleman, 1968 and 1973). It contributed at least to making those who participated aware of the greater complexity of the problems. A basic distinction that ensued from the debate was the one between equality of opportunity and equality of results. Another distinction of great importance, when it comes to the policy implications, is the one between inter-group and intra-group equality. J. Rawls in his book A Theory of Justice (1971) makes the former distinction and advances what Frankel (1973) refers to as a "new" or "redemptive" egalitarianism. The fact that a person is born with certain genes into a family with certain material and cultural assets is, as Rawls puts it, "arbitrary from a moral point of view". That some are born with brilliant minds and others with dull ones can be ascribed to the "natural lottery". Thus, the moral problem is to "redeem" the individual who due to the "lottery" has been born with less favourable genes, to more favourable circumstances. The message of the "redemptive egalitarianism" with its emphasis on the result is that society should see to it that burdens and benefits are distributed according to individual capacity.

The overall strategy emanating from the redemptive philosophy is one of inversed equality of opportunity within the educational system according to the principle that "those who got less, will get more". This is the basis for certain programmes of compensatory education which aim to bring students who come from underprivileged homes up to a reasonable level of, for instance, reading skills. In the policy debate in the United States on equality of opportunity it has repeatedly been emphasized that the goal should not be to equalize per-pupil expenditure between school districts drawing their students from poor and more wealthy areas but to equalize opportunity to learn according to certain common goals stated in the curricula. This means, money-wise, a reverse discrimination (see, e.g., Carlson, 1972).

The "redemptive" philosophy has also been advanced as a rationale for giving students from underprivileged minority groups preferential treatment in university admission.

Conservative, Liberal, and "Redemptive" Conceptions of Educational Equality

The conservative view of how education is related to home background and individual capacity can briefly be described as follows: God has bestowed different amounts of talent upon each human being and it is up to the individual to make optimal use of what has thus been entrusted him. A more consistently conservative variant of this philosophy maintained that, by and large, an individual was endowed with the capacity that corresponded to the estate or caste to which he was born. The tacit assumption, then, was that he had not only to make optimal use of what he had been given, but also be content with his status and talent because he had been given what he deserved by birth. A more liberal variant of this philosophy became prevalent during the mercantile era with its emphasis of *selectio ingeniorum*. It was considered to be to the benefit of the nation's economy and industry if the scarce gold of talent among the masses could be discovered and properly developed.

The structure of the educational system in the conservative conception has been seen in terms of parallel types of schools serving the needs of different social classes in a society where status is by and large ascriptive. Industrialization in Sweden and other countries during the latter part of the 19th century initiated a demand for adequately trained white-collar workers. This introduced a change in the ascriptive pattern and gave impetus to a debate on reform. Self-employed workers running small enterprises also needed more advanced skills than those provided in the rather poor elementary school. Apart from the compulsory elementary school, only the classical *gymnasium* prepared for university entrance and had a curriculum that leaned heavily toward Latin and humanistic studies. The conservative view of what was needed was advanced by a leading *gymnasium* educator (Husén and Boalt, 1968). At the beginning of the 1880's he published a brochure in which he spelled out how the *gymnasium* suited the needs of students who were heading for professional, upper-class positions and the elementary school served those who belonged to the mass of manual workers in urban and rural areas. He proposed a middle school which should cater to the needs of the new middle class of clerks and small entrepreneurs. Legislation to that effect was enacted by the 1904 Parliament.

The so-called Black Papers (Cox and Dyson, 1969 and 1970) which set out to fight against the "comprehensivization" of the three-partite secondary education in England, particularly the attempts to abolish the eleven-plus examinations and the streaming practices, can be regarded as representative of the conservative conception of equality of educational opportunity both in Europe and the United States. These publications consistently advance arguments that scholastic aptitude, particularly as reflected in I.Q., is chiefly inherited, and that the educational system has to be strictly selective in order to take proper care of the scarce high level talent. A comprehensive system that gives universal access to secondary education dilutes the academic standards and hampers the development of the highly talented, including students with working class background, and thereby, in essence, promotes inequality. In Black Paper One, Angus Maude in a contribution entitled "The Egalitarian Threat" (op. cit., p.7f) distinguishes between equality of educational opportunity and egalitarianism. The egalitarian is a person who "instinctively dislikes any process which enables some children to emerge markedly ahead of their fellows". His reaction predisposes him to destroy schools which are taking special care of the most talented students. "All kinds of education are not, as the egalitarians pretend, of equal worth and importance, nor can anything but harm come of claiming equal status for all kinds of educational institutions. Equality of opportunity is a worthy ideal, which, however, cannot be quickly achieved unless one wants to avoid "damaging the total quality of society". Maude's dictum is: "You can have equality or equality of opportunity. You can't have both" (op.cit., p.14). The attempts to comprehensivize secondary education is simply a "levelling down of the higher standards towards mediocrity" (op.cit., p.7).

The second Black Paper has an introductory section entitled "The Basic Realities", which consists of papers by three outstanding scholars in psychology, Professors Sir Cyril Burt, Richard Lynn and H.J. Eysenck. Their main theme is how individual differences occur and what implications they have for educational policy. Cyril Burt has over many years provided the main evidence on the heritability of I.Q. derived from studies of identical twins reared apart and together as well as from studies of the intellectual similarity between foster children and their foster parents and biological parents respectively (see, e.g., Burt, 1966). His conclusions clearly endorse a hereditarian view of individual differences in I.Q. He is also convinced that social class differences are accounted for by genetic factors. Lynn cites Burt's statement that social class yields an approximate estimate of innate ability (Cox and Dyson, 1970, p.29). He goes on to maintain that the fact that working class children do less well in the eleven-plus examinations and less frequently enter university than middle-class students is determined by two circumstances: "One is that they are innately less intelligent (on the average) and the other that their families provide a less suitable milieu for scholastic success" (op.cit., p.28). The evidence is, according to Lynn, "partly common sense". He points out that "for a good many centuries it has been possible for able people to rise in the social hierarchy". He cites examples of individuals who have succeeded in making their way into the upper middle-class. This process has continuously enabled high quality genetic strains to end up in the upper social strata.

The policy implication of a social philosophy according to which ability plus hard work enables the individual to climb the social status ladder in an elitist educational system. This should be devised so as to sort out effectively the able and diligent students. The opening up of further-going or advanced education without rigorous selection means lowering of standards. This will impair the educational opportunities of bright students, particularly those of lower class origins, because they will be hampered by their slow-learning classmates and not given the opportunity to develop their capacities. One of the authors of Black Paper Two, Szamueli, goes even as far as to make the point that a comprehensive system which treats every student equally produces greater inequality than the previous elitist system in England. An educational provision which allows every child to develop his talents in an optimal way can only be accomplished by an unequal, differentiated educational system that "levels out the handicap created for the able pupil by the inadequacies of his family's social and economic position" (Cox and Dyson, 1970, p.49). He goes on to point out that the British grammar school has provided "countless gifted working-class children with the opportunity to break down the class barriers and achieve unrestricted scope for their talents" (op.cit., p.50).

* * *

The liberal principle of equality of opportunity has nowhere been so firmly anchored in public opinion as in the United States. Jencks and his associates point out that "most Americans... believe in what they often call 'equal opportunity'. By this they mean that the rules determing who succeeds and who fails should be fair" (Jencks et al., 1972,p.3). This means that whatever inequalities do result from success or failure in educational and job competition ought to relate to competence or some other desired quality rather than to arbitrary qualities, for which the individual is not "responsible", such as race and home background (Levine, 1973, p.155).

The idea of equality of opportunity embodied in what is referred to as the "American Dream" is epitomized in the following quotation from Thomas Wolfe:

"So, then, to every man his chance -
To every man, regardless of his birth,
His shining, golden opportunity -
To work, to be himself,
And to become
Whatever thing his manhood and his vision
Can combine to make him -
This seeker,
Is the promise of America.

Schematically, the essence of the classical liberal philosophy of equality of opportunity is this: each person is born with a given amount of capacity, which, to a large extent, is inherited and therefore cannot be substantially changed. The educational system should be so designed as to remove external barriers of an economic and/or geographical nature that prevent able students from the lower classes from taking advantage of inborn talent which entitles them to due social promotion.

Several structural school reforms in Europe during the last few decades have been guided by this philosophy. By making education more comprehensive in terms of recruitment and programmes, and by making secondary education available to children from all social classes, it is hoped that one can remove the handicaps that are inherent in being born poor and living far away from a school. The Weimar Constitution of 1919, which was drafted by Social Democrats, talked about a society where status according to (inborn) capacity would replace a social order where status was determined by socially inherited privileges. The school had as a major task to "promote the talents" (Begabtenfoerderung). The Constitution states that the educational career should be determined by "innate aptitude" (Anlage) and "inclination" and not by social background. The criteria of scholastic promotion should be "ability" and "will". A system of financial aid was expected to set in motion an intensive social mobility by facilitating an open competition where the able could get access to the careers that they deserved (Petrat, 1969).

The 1944 Education Act in England, which provided secondary education for all children and not only for those whose parents could afford it, was regarded as a democratic breakthrough. Entry to the prestigious grammar school was to be based on competitive examinations (the "11-plus" examinations) and "allocation" to the various types of secondary education should be based on (inborn) aptitudes and not on economic or social background. As was pointed out above, some ten years after the reform the proportion of working class students admitted to grammar school tended to be even lower than before the reform (Floud et al., 1956). This was one of the pioneering studies that contributed to the growing awareness that selectivity according to some highly valued social criterion irrefutably is beset with social bias, simply because the criterion is correlated with social status (Husén, 1971a). The O.E.C.D. surveys in which participation has been related to social class and school attainment provide rather consistent evidence that increased formal accessibility to free secondary and higher education for all students of a given age has not changed to a considerable extent the social structure of the enrolment (see e.g., O.E.C.D., 1971a).

It should be emphasized that the distinction made between "competence" on the one hand, and "arbitrary qualities" such as social class or race on the other, does not mean that these two types of characteristics are independent of each other. On the contrary, they are more or less correlated. This means that already at the point of entry to a certain stage of the educational system, formal equality, for instance in terms of having the school close to the home and not having to pay any fee, is not the same as real equality of opportunity. This means that individual capacity is not independent of social background. The specific criteria of scholastic aptitude employed when it comes to admission and promotion in an educational system, are grades, scores on objective tests, and examinations. All these criteria are, to a varying extent, correlated with social background. Socio-economic status indices usually correlate with I.Q., achievement test scores, and school attainments between .2 and .5. If one, however, takes into account the psychological aspects of the environment of upbringing, for instance the interaction between parents and the child, much higher correlations are obtained. The extent to which these correlations are accounted for by genetic and social inheritance respectively, is, indeed, a tricky problem.

Thus, a system with access and promotion determined by objectively assessed competence does not exclude the influence of socio-economic factors, which according to the more naive liberal conception are discarded by employing "pure" criteria of academic merit. As long as a given type of education is available free of charge, and a high proportion of those who apply admitted, and as long as attrition during a certain stage is low, social background plays a less prominent role. But as soon as the system becomes more selective in terms of a low proportion admitted and in terms of grade-repeating and drop-out, then the correlation between background factors and indicators of performance increases considerably.

What was referred to above as the "naive" version of the liberal philosophy of equality of opportunity has in recent years been the target of strong criticism. In an article, "End of an Impossible Dream", Schrag (1970) points out the incompatibility of the aspirations held for the school system.

The school cannot serve at the same time as an equalizer and as an instrument that establishes, reinforces and certifies distinctions. He quotes Horace Mann on the school as an equalizer: "It prevents being poor ..." Equality of opportunity was for a long time interpreted in terms of social Darwinism. Everybody should be free to go ahead as far as his talent and energy could carry him. "Everyone in the jungle (or in society, or school) was to be treated equally: one standard, one set of books, one fiscal formula for children everywhere, regardless of race, creed, or colour. Success went to the resourceful, the ambitious, the bright, the strong. Those who failed were stupid or shiftless, but whatever the reasons, failure was the responsibility of the individual ... but certainly not that of the school or the society" (op.cit., p.70).

The conflict between equality on the one hand and establishing competence and distinctions on the other has been dealt with by Karabel (1973) in an attempt to analyse the philosophical implications of the pros and cons for an open admission to the university. He states the problem in the following way: "The ideology of academic standards brilliantly reconciles two conflicting American values: equality and equality of opportunity. Through the system of public education, everyone is exposed to academic standards, yet only those who succeed in meeting them advance in our competitive system. Everyone enters the educational contest, and the rules are usually applied without any conscious bias. But since the affluent tend to be the most successful, the net result of the game is to perpetuate intergenerational inequality. Thus academic standards help make acceptable something which runs against the American grain: the inheritance of status" (op.cit., p.40).

The educational system, at least in a modern society, on the threshold of the post-industrial era, is "one-dimensional" in the sense that one uniform, linear standard (bright, average, slow student) is applied. Thus some students, by definition, are destined to fail. The whole conception of individual differences in school achievement is part and parcel of the norm-referenced approach in evaluating student progress that has become more and more dominant in modern society. Students are continuously judging their performances against standards or norms set by their teachers, peers and parents. But these standards vary, so that a student who performs relatively badly in one school could be considered a success in another, where the standard is low. The rethinking about individual differences in scholastic performance that has been going on in recent years (see, e.g., Bloom, 1971) is based on the criterion-referenced approach in evaluating student performance. The strategy is built on the setting of an absolute goal for student learning in such a way that with adequate methods of instruction (individualization in terms of time and media) the goal can be achieved by the great majority of students (Block, 1971).

Another strategy for achieving equality of opportunity is to provide multiple options which reflect different values which are not ranked within one dimension only. Schrag points out: "By definition, no society with but one avenue of approved entry into the mainstream of dignity can be fully open. When the single instrument of entry is charged with selecting people out, we are promising to all men things that we cannot deliver" (op.cit.,p.93). For instance, in the 1940's only some 40-50,000 high school leavers took the Scholastic Aptitude Test, whereas their numbers were running in the millions by the middle of the 1960's.

In a "one-dimensional" system, where only one type of programme, the academic one almost throughout is perceived as the entry to the mainstream, equality cannot in principle be established, simply because "some are more equal than others". Those who from the outset are "more equal" will take more and more advantage as they move up the stages of the hierarchy.

The glaring contrast between the official rhetoric about equality of opportunity and the wide differences in life chances has, as was pointed out earlier, led in recent years to the emergence of a philosophy of results. In the preface to his book, More Equality, Herbert Gans (1973) states the problem in the following way: "America can be described as an unequal society that would like to think of itself as egalitarian. While officially dedicated to equality of opportunity, to enabling the disadvantaged to succeed on the basis of their individual ambition and talent. America has not acted to remove group handicaps - of class, race, and sex, among others - which prevent many people from actually realizing that opportunity; it must also be judged by results, by whether current inequalities of income and wealth, occupation, political power, and the like are being reduced" (op.cit. p.XI).

R.H.Tawney in his classical essay on Equality denounced the liberal conception of equality of educational opportunity as a "fraud". It seemed to him to be"the impertinent courtesy of an invitation offered to unwelcomed guests, in the certainty that circumstances will prevent them from accepting" (Tawney,1951).

A strong impetus to a new thinking over the entire issue of whether or not children are starting from "scratch" when they enter regular school has come from the research conducted during the last 10-15 years on cognitive development in the pre-school years. Bloom (1964) reanlyzed data from previous studies and pointed out that about half the variance in I.Q. at the age of 18 was already there when children entered primary school. A new type of research on early childhood experience and socialisation modes in children by means of parental communication and language was opened up by Bernstein (1961). These and other studies focused attention on pre-school years.

One of the most important longitudinal studies of a representative group of children who have been followed up from their birth in 1946 is the one conducted by Douglas and his associates (Douglas, 1964; Douglas et al, 1968). He related parental aspirations pertaining to the children's further education and future occupation to parents' social background. He consistently found that parental interest in the children's education was closely linked to their own education and social background. Similar findings are reported from the Malmoe longitudinal project. Parents, who in 1938 were 10 years old, were asked in 1964 what aspirations they had for their own children's education. This question was posed at a time when upper secondary education was available to practically all and when higher education had been considerably broadened and when there were virtually no longer any economic barriers. Approximately only half as many parents, who in 1938 grew up in working class homes, in 1964 aspired to higher education, compared with those who grew up in homes in the professional and managerial category (40 per cent as compared to 80 per cent) (Husén, 1969).

Douglas points out that the conception of a mobile society where everybody would rise (or fall) to the level of his inborn capacity which inspired for instance the 1944 Education Act. was far from being realised: "It is sometimes assumed that the better educated move up the social ladder because they are the most able and that the schools and the universities sift out the best endowed and give them opportunities to rise. This is how many would wish it to be. The vigour and quality of present day society depends on the efficiency with which the educational system sifts out the able pupils from all levels, and allows them to qualify for posts of responsibility. The evidence of this study shows how far short we are falling" (Douglas et al., 1968, p.90).

* * *

Recent studies and the debate pertaining to both conceptualisation and methodology that has followed in its wake has been conducive to a more "redemptive" or - perhaps better - sociological conception of educational equality. According to the liberal conception the task of society is to accept the educational system by and large as it is and to limit its role to the removal of external barriers so as to make it possible for each child to develop fully his inborn capacity. Success and failure, once the student has entered the system, entirely depend upon him. Once the avenues have been opened up for free competition, his native intellectual and moral resources are the decisive factors. If he fails he has himself to blame, because he has been given the opportunity and has not taken advantage of it.

According to the more "redemptive" conception, a student's success and, not least, his failure, mainly has to be attributed to the institution that is supposed to serve him. The basic problem, then, is to what extent the school has been able to organise its learning activities in such a way that it has been conducive to satisfactory student development. On the part of the school this implies a revision of basic pedagogical notions, such as that most students learn mainly because they want to avoid unpleasant consequences, blame, low marks and grade-repeating, or that some students are bound to fail if they are faced with certain tasks that are supposed to be particularly "hard". The common denominator of the needs for reform is individualisation of instruction.

In consequence, then, equality of opportunity does not mean identical treatment. If equality of education means that every child should have optimal opportunity to develop, not only with regard to his personal assets but also according to a sufficiently wide range of options, identical treatment could easily be counterproductive. The problem could be formulated in a paradoxical way by stating that the educational system should provide opportunity for unequal treatment in dealing with socially important individual differences.

The Heredity-Environment Issue

It would take us far afield if we were to discuss here in some detail the conceptual and methodological aspects of such burning issues as to what extent cognitive differences are inherited (Jensen, 1969, 1972 and 1973), and to what extent there is evidence to support the thesis launched with some fervor in recent years (Berg, 1969; Jencks *et al*., 1972; Bowles and Gintis, 1973) that schooling *per se* does not significantly account for differences in adult "success". There is by now a vast technical literature in the wake of the Jensen article in 1969 in the *Harvard Educational Review* and the re-analysis of existing data-sets by Jencks (1972) and his associates. There are, however, certain crucial aspects of this research that should be pointed out in this connection. For details the reader is referred to Husén (in press) where the relevant literature has been reviewed.

The seemingly so-academic nature-nuture controversy, which in recent years in the United States has erupted in an acerbated debate which has produced an enormous polemic literature, might superficially appear to focus on differences in opinion on how certain group differences, especially race differences, should be accounted for. Jensen (1969), Herrnstein (1973) and others maintain that these differences are mainly genetic in nature, a contention that has been criticized by both geneticists and social scientists. A key role in the technical debate is played by the concept of "heritability", which indicates what proportion of the observed intra-group variability of a given trait is accounted for by genetic factors. Jensen follows Burt (1966) and arrives at an heritability estimate of 80 per cent, whereas Jencks and his associates (*op.cit*., p.71) end up with an estimate of about 50 per cent. But the model itself is beset with what are referred to as a "major theoretical limitation" (op.cit., p.286), namely the basic assumption that genetic and environmental factors operate in an additive way. This is extremely unlikely and has been seriously doubted by both geneticists (Moran, 1973) and psychologists (Husén, 1963). Furthermore, heritability is an average index that applies to a particular population and not to a particular individual. It is, as Cronbach (1973) puts it, "a socio-historical fact". Since it applies only to the population, from which it has been derived, it cannot, in a strict sense, be used to explain differences between populations, even if there is strong circumstantial evidence that it could apply.

The intense emotional involvement in the problem of the relative "influence" of genetic and environmental factors accounting for differences in IQ seems, of course, from the far-reaching educational, social and - not least - policy implications of the problem. This has been made explicit by several radical critics of what they refer to as the "IQ ideology". The traditional liberal philosophy spelled out by psychologists such as Herrnstein (1973) and Eysenck (1973) has been challenged by critics like Jencks and his associates, but particularly by Bowles and Gintis (1973) and Edmonds and Moore (1973); the last two in their critique of the Jencks study. Edmonds and Moore go as far as to characterize intelligence testing as "a political expression of these groups in society who most successfully establish behaviour they value as measure of intelligence" (op.cit., p.12). Thus, in a way, intelligence testing could be regarded as an instrument of political oppression; and they go on to say that those who believe that IQ is a major determinant of social success and that it is mainly inborn, also tend to believe that those who fail or are poor have arrived at their poor conditions because of their inferior genes. What on the surface appears to be an academic issue is closely related to the struggle between two ideologies; one that wants to preserve the existing social order (including education) and one that wants to bring about a more or less radical change.

What Causes Educational Inequality?

There is a vast amount of recent literature dealing with the various types of factors which are more or less closely related to educational inequality; in terms of both intra-group and inter-group differences. The latter distinction is, as we shall see important, since inter-group differences were not only the starting point for concern about inequality but also more accessible to policy action than intra-group differences. Therefore, as Coleman (1973) points out, it is rather strange that Jencks (1972) and his associates devote the bulk of their massive analyses to individual and not to group differences. The relevant relationship between education and income is to be found at the societal level, whereas all the analyses conducted by the Jencks team are conducted at the individual level.

Cognitive differences among individuals belonging to a particular group, in a particular society, are attributable to three types of factors; differences in genetic dispositions; differences in their environment of upbringing; and differences due to the interaction between genetic and environmental factors. In the methodological debate on the heredity-environment issue there has been an unfortunate tendency to disregard the third type of factors in an attempt to identify "influences" which can be regarded as "purely" genetic or environmental. Since policy interventions can affect all three sources of differentiation as well as the relative weight they carry, it is necessary to take them all into account. Not least, race discrimination is an illustration of interaction effects.

In the previous section we briefly dealt with the crucial role played by "heritability" in the heredity-environment controversy, during the last few years. It is sufficient therefore to point out here that this concept has not proved to be very fruitful in elucidating the problem or in arriving at an estimation of how much margin there is for educational interventions. It may also be pointed out that leading geneticists regard the index as scientifically invalid (see, e.g., Moran, 1973). The most valuable analyses relating to this issue have been conducted by Jencks (1972) and his group. They have included very little of it in the main text and buried most of it in an extensive Appendix on estimating the heratibility of IQ scores (op.cit., p.266 et seq.).

Research about what causes inequality and to what extent it has suffered from certain crucial weaknesses should be pointed out before we attempt to review the most ambitious study of inequality so far conducted, namely the one by Jencks and his associates.

1) Most of the data sets which have been the subject of sophisticated multivariate analyses are cross-sectional survey data. This makes it extremely difficult to structure the variables "causally". This is perhaps most evident when one has to deal with attitude variables. Is, for instance, the attitude towards schooling to be regarded as an independent or a dependent variable? The temporal sequencing of variables has to be done according to hypothesized directions of causal influences. It is not possible to avoid personal judgment in structuring the variables. In order to overcome this weakness, we badly need longitudinal data, where the temporal sequencing is obvious. This is why the application of Jencks (modified) Duncan path analysis model to the Malmoe data has turned out to be so fruitful (Bulcock et al., 1974).

2) Most of the studies have, as pointed out earlier, focused on individual instead of on group differences, in spite of the fact that, in terms of national policy, group differences are of much greater interest than intragroup differences (Levine, 1973, p.173, and Coleman, 1973). Group differences are most accessible to

public policy, as has been shown in terms of increased participation rates among blacks in the United States for instance.

3) Most analyses have employed sophisticated techniques of multivariate analyses, particularly the path analysis, originally developed by Duncan. The adequacy of this model, particularly its assumption of linearity, is, of course, crucial.

4) To what extent are the relevant variables covered? This applies both to the input and output side. On the input side quite a lot of "proxies" are used, such as per-pupil expenditure, whereas subtle (and perhaps crucial) variables pertaining to teacher-pupil interaction are left out because of the difficulty of measuring them. On the output side the easiest thing to measure, by means of standardized tests, is achievement. Affective outcomes are seldom measured because of the measurement problem. Henry Levin (1972) in his review of *Inequality* has succinctly pointed out this and other shortcomings.

5) The level of aggregation plays an important part in the attempts to assess the role played by school factors in educational inequality. This relates to the input variables, where class-by-class aggregations or school-by-school aggregations are used. This tends to dilute the "real" influence of input factors which affect the students more directly (cf. Levine, 1973, p.160).

* * *

An investigation that because of its alleged policy orientation has loomed particularly large in the debate since 1972 about educational equality and its impact on life chances is the one launched by Jencks and his group. Alice Rivlin (1973) refers to it as "forensic social science", and it may be expected to elicit a vivid debate, particularly since, in a provocative way, it casts grave doubts on the worthwhileness of the (small) part Great Society programme that deals with education.

The *Harvard Educational Review* devoted almost an entire issue to a series of solicited reviews of the book. Donald M. Levine (1973) in a lengthy review in the *Teachers College Record* discusses the policy implications. Robert J. Havighurst (1973), in the *School Review*, focused on the equity problem. The *American Journal of Sociology* in its May issue 1973 published a "review symposium" where four invited reviewers scrutinized the study, etc.

It would be preposterous to try to summarize the criticism in a few pages. It is self-evident that a heavily publicized investigation which claims to have shown that family background, IQ, and educational attainment account for only a minor portion of the status and/or income inequality among adults, which makes the baffling assertion that the overwhelming portion of the economic inequality is created anew for each generation, and that the educational system is there mainly to serve as a certification and sorting system, is most surely running the risk of criticism both from those who represent the "system" and have a vested interest in it, and from those who adhere to the liberal philosophy of using education as a major instrument of social improvement.

The scholarly criticism has concerned both the theoretical framework for the study and the methodology employed, i.e., the regression analyses, particularly that variant of it which is called path analysis. The methodological shortcomings have, of course, serious repercussions on the policy implications. In two reviews James Coleman (1973a and 1973b) points out the inconsistency between aims and actual research strategies in the Jencks investigation which he, by the way, characterizes as "macro-social research". So far, this has played a very modest role in educational research in general, where the main preoccupation has been with what goes on in the formal instructional situation, i.e., in the classroom. Jencks and his associates explicitly make the equality of results, for instance inequality of occupational status and income, their main concern. But implicitly they devote most of their analyses to finding out to what extent inequality of results are accounted for by inequality of opportunity.

Another inconsistency, pointed out by several reviewers and mentioned above, is that from the point of view of public policy the relevant relationship between social background, IQ, and educational attainment on the one hand and career characteristics on the other is the one at the societal level whereas most of the thorough analyses have been conducted at the individual level. There are indications that policy actions can have some effect in reducing group inequalities, for instance between ethnic and socio-economic groups, whereas individual inequalities in results tend to prevail in both capitalist and socialist systems because of individual differences in opportunity which can be affected to a very small extent or not at all by social policy. For instance, unless the traditional family structure is completely broken up, there is no way of preventing parents, who are better educated and have more successful careers than others, from passing on these advantages to their children (together with the genes that interact with these advantages)(Cf. Eckland, 1977). Thus, since public policy in general is better designed to affect groups it would have been more fruitful if the study had focused on group inequality of opportunity and results respectively instead of on individual differences.

The "macro-social approach", where analyses have been conducted with data from national samples, has obvious hazards. Several reviewers (see, e.g., Levin, 1972) have pointed out that considerable variations in income due to age and region contributed to the blurring of relationships which would have stood out clearer if the regional and the age factor had been considered.

The explained variance (R^2) in the Jencks study is unusually small (Jencks gives the figure "12 to 15 per cent"), less than one sixth of the variance if income is used as a criterion and somewhat more if the criterion is occupational status. To jump from this to the conclusion that the combined effect of home background, IQ, and educational attainment is of almost no importance is, for several reasons, premature. A lack of a more substantial overall relationship could be due to limited validity of the measures of both independent and dependent variables as well as to errors of measurement.

Sewell (1973) points out that the residual variance in any regression model is due to (1) lack of relevancy of the independent variables, (2) failure to include exogenous or intervening variables which significantly contribute to variance in dependent variables, and (3) failure to define and/or measure the dependent variable.

Instead of entering upon a discussion of the dependability, particularly of the criteria, Jencks et al. lump all the unexplained variance together with the error variance under the label "luck" which is assumed to include certain personality factors which are inaccessible to quantitative methods. Furthermore, the frame of reference for interpreting the outcomes of the multivariate analyses has not been particularly fruitful. The "effect" of education as a factor explaining occupational success has been grossly underestimated by comparing its part of the criterion variance with the entire unexplained variance. Coleman (1973b) points out that educational attainment is in fact the strongest single explanatory variable in accounting for differences in occupational status and income.

The technique used in accounting for differences in occupational status and income respectively is that of path analysis. It is not always realized by those who are not familiar with this analytical tool that it is not "objective" in the sense that the model chosen for a given individual analysis is unequivocally given. As pointed out above, personal judgment and experiences of what reasonably can be expected affect what goes into the model in terms of inclusion of variables and the way these variables are ordered in the causal chain. A crucial aspect of path analysis is the causal structure of the model and the extent to which relevant variables have been included.

Technically, and from the point of view of basic research on individual differences, the two big appendices constitute what Pettigrew (1973) refers to as the "real meat" of the study. This applies particularly to the re-analyses that Jencks and his group have carried out of data pertaining to the heritability of IQ scores. These analyses represent an important addition to the debate on what (given the assumptions upon which the estimations of heritability rests) could be regarded as a reasonable heritability index for IQ scores.

Incompatibilities and Dilemmas of Equalization

In the debate on strategies that are supposed to bring about more equality in education certain dilemmas, and sometimes clear-cut incompatibilities, are not always made explicit.

One basic dilemma resides in the fact that the educational system is there to impart competence. This means that it tends to emphasize individual differences in achievement. Its mode of evaluation tends to be "norm-referenced" rather than "criterion-referenced". Normative evaluations are the basis for successive selective and differentiating steps as the individual moves up the educational ladder. It is part of the inner logic of such a system that differing amounts of ability and motivation (the latter being successively influenced by the norm-related successes and failures) progressively create increased individual differences, which tend to be correlated with social background. Thus, in that respect the school system serves a principle incompatible with, or at least counteractive to, equality.

A second dilemma has to do with efficiency versus equality, and tends to cut across various types of economies. In her study of access to advanced education in the socialist countries (see, Sauvy et al., 1973). Janina Lagneau points out that the "primary and ideological concern has been to improve rapidly the education of the previously underprivileged classes - working class and peasant class - but this aim very quickly came into conflict with the immediate demands of the economic structure for managers and technicians" (op.cit., p.25). This is, of course, a more serious dilemma in an economy under rapid industrialization, where the scarce resources have to be used more efficiently, than it is in an economy where advanced education can more readily be provided as a consumer good. An economy which badly needs well-trained technicians and managers is not well served by a system of unspecified general education at advanced levels which is easy of access. Being rather selective at the university level, which is the case for instance in the U.S.S.R., has been justified on the grounds that it promotes acceptance of those who, from the teachers' point of view, are the most qualified (even if they tend to come from the intelligentsia with a frequency which is greater than their "share" of the total social composition) and thereby "enhances the productive forces".

A third dilemma is that equality of opportunity requires not equal but different treatment or offerings; a principle which could be practiced in comprehensive-type schools and not necessarily different or seperate schools. There is overwhelming evidence to show that early organizational differentiation of children by allocating them to different types of schools is highly correlated with social background; the more so the earlier the allocation (or selection) takes place (Yates, 1966). Where initial differences of any school-relevant respect already exist when children enter school, quite uniform offerings or treatments cannot but increase these differences. This can be seen in all types of schools that have in common a "frontal strategy" of teaching and have not adopted any strategy of consistent individualization or "mastery learning". But radical individualization, i.e., a differentiation of offerings according to individual optimal capacities will increase the differences among the recipients, unless one provides more learning time and other compensatory treatments for those who lag behind initially.

It has repeatedly been advocated by those who favour a more selective and elitist educational system that the creation of a more integrated or comprehensive one would lower standards and be particularly detrimental to the more able students (Husén, 1962 and 1973; Cox and Dyson, 1970). Very few question the proposition that an integrated, comprehensive system is to the advantage of students with an underprivileged educational and social background. For instance, the extensive survey conducted by Coleman and his associates (1966) on ethnic integration and educational equality in the United States suggested that the underprivileged black students profited more by going to integrated rather than segregated schools. But integration tends to level out in the sense that it enhances the development of those who start at a low level but tends to be less conducive to an optimal development among the most able students. This seems to be true if one looks at the development of those students, who were intially selected for the elite type of schools and neglects those, mostly from lower social strata, who would not have been selected in an elite system, but who in a comprehensive system have become eligible for advanced education.

The standard of the elite in national systems of education which at the secondary level are comprehensive and selective respectively was compared in the I.E.A. Project (Husén, 1973; Comber and Keeves, 1973). If equal proportions of the age groups were compared, the average level of achievement of the top 1, 5 and 9 per cent respectively of the relevant age group tended by and large to be on the same level in Mathematics and Science in the two types of systems.

Most important, and pervasive, of the dilemmas seems to be the egalitarian-meritocratic one. It also cuts across various types of economies and social orders. It emerges with the same force in all highly industrialized countries, be they capitalist or socialist. In his study of the coming of the post-industrial society Bell (1973) foresees a growing meritocracy. Since there is a movement toward the "new centrality of theoretical knowledge, the primacy of theory over empiricism, and the codification of knowledge into abstract systems of symbols that can be translated into many different and varied circumstances", this movement toward greater rationality will mean that systematized knowledge rather than property and political status becomes the basis of influence and power. Bell sees the ascendency of technology, the subordination of both the public and private sector to bureaucratic controls and the growing influence of professional and scientific elite as salient features of the post-industrial society.

The equality-meritocracy dilemma is not only one of increased power, influence and rewards of educated intelligence. It is not just that the demand for highly trained manpower will make those who perform well and reach high levels in the educational system more prestigious and more influential and better paid. There is also a tendency for meritocracy to be passed on from one generation to another. The liberal conception of a meritocracy as spelled out by Herrnstein (1973), for instance, assumes a high degree of inter-generational mobility. Between the generations there will be a "just reshuffling" between the social classes according to inborn capacity. Those who were born into privileged circumstances, but genetically are "regressions" toward the mean, will also regress in terms of occupational status, whereas among those born into lower classes those who have a high genetical potential will tend to move upwards in status. But this picture that the "social classes will sort themselves out" between generations is not supported by particularly convincing evidence. There is a tendency across different social orders that those who "made it" to advanced positions (not least by means of getting advanced education) tend to pass on their advantages to the next generation, particularly in countries where the inheritance of material wealth is nil or close to nil. Under such circumstances the best things parents can do is to see to it that they from their vantage position maximize efforts to support their children in getting access to the best possible education (Sauvy, 1973).

The tendency to pass on achieved status from one generation to another is, in the meritocratic society, a substitute for the inherited privileges in the ascriptive society. All industrialized countries are very far from the inter-generational "reshuffling" of statuses believed in by those who advocate a systematic meritocracy based on intellect and effort. The "new intelligentsia" in countries that have recently gained independence and/or have gone through a rapid process of modernization has a vested interest in preserving the privileges that go with the status which often has been won with much work and sacrifice. They resent equalization measures which aim at spending more resources on students who are initially disadvantaged. As has been pointed out by Lipset (1972), the mobility is considerable. But the social classes by no means "sort themselves out" to the extent that Herrnstein and Eysenck seem to believe. The contention of an achieved social status, which reflects the intellectual potential of an individual, cannot be effectively challenged unless one begins to look at longitudinal evidence showing how early "intelligence" is related to life chances, such as occupational status later in life. So far, this evidence is extremely scarce and that re-analyzed by Jencks and his associates, for instance, is beset with too many limitations.

Lipset, after having reviewed the literature, concludes that "the advanced Communist countries have not been more successful than the advanced Western countries in removing all the barriers to upward social mobility. In all the industrialized nations, higher education is an almost essential prerequisite for social advancement. And despite the efforts of many societies to insure that educational resources are equally available to all, everywhere lower-class children seem unable to take full advantage of them". (Lipset, 1972, p.106).

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There is no doubt an intrinsic element of meritocracy involved in the social process connected with advanced industrialization. It implies a highly increased demand for expertise with advanced training in such fields as technology, science, administration, and communication (in a wide sense, including teaching). The necessity to recruit a new generation of intelligentsia makes the social status system somewhat more fluid. The ascriptive status determined by birth and social background is at least partly replaced by achieved status for which education becomes increasingly important. In a society with universal secondary education and in rapid transition toward mass higher education, furthergoing education becomes increasingly important not so much for acquiring a particular job competence as for maintaining one's competitive power on the labour market (Thurow, 1972). With job recruitment increasingly being done on the basis of certificates and degrees, the educated have better chances of climbing the social ladder than the less highly educated, or, at least, do not run the same risk as the latter of slipping down. The higher the premium attached to educated intelligence and the more keen the competition for advanced education and attractive positions becomes, the more imbued with meritocratic values society tends to be.

As has been repeatedly pointed pointed out above, it is interesting to note the meritocratic preponderance in various types of economies and social orders which have in common a fairly high degree of industrialization. As secondary education has become universal the thrust toward higher education has become intense and aspirations to enter the professions have increased tremendously in both socialist and capitalist economies (see Sauvy, 1973).

In the long run, the impact that the meritocratic element has on the society depends upon the weight attached to economic growth as a worthwhile goal and its compatibility with subjective indicators of the "quality of life". Since economic growth is so closely related to the efficient utilization of modern technology and management techniques, competence that will guarantee successful incumbents of an increasing number of key jobs becomes paramount. On-the-job training in these cases does not suffice but has to be based on advanced formal education of a general nature.

Strategies for Educational Equality

On the basis of the extensive research that has been conducted over the last decade, focusing on problems related to equality in education, what can be said to be "effective" strategies that will enhance life chances? The policy implications of research concerning social background and educational attainments have been dealt with more elaborately in another context (Husén, 1972; Husén, in press). We shall therefore confine ourselves here to certain general strategies and be rather brief on the specific ones.

First, an introductory caveat. Policy-makers do not indeed behave like the Platonian philosophers-kings in the sense that they just "apply" research findings in framing policy. There are no clear-cut relationships between "research findings" and policy-making. The researcher can assist the policy-maker on conceptualizing the problems, so that they are posed in a productive way - or, quite often, vice versa. Apart from actually conducting the research he can also assist in interpreting the findings in terms of alternative sets of values. By and large, his role is to enlighten, to broaden the perspective, and add to the basis of "facts" on which planning and policy decisions are made. The role of implicit values in the research process proper should not be forgotten, particularly when the researcher sets out to interpret his findings. Levin (1972) in his review of Inequality refers to this as the social science "objectivity gap". The entire debate elicited by, for instance, the Jensen article on whether or not we can "boost IQ" offers a series of excellent illustrations of how the same numerical figures arrived at after a series of rational operations can be interpreted in completely opposite directions, as either refuting or supporting an hereditarian or environmentalistic view.

Somewhat schematically we can in this context distinguish between two opposing interpretive ideologies. There is on the one hand the conservative, and often meritocratic, conception that human talents, not least scholastic talent, are on the whole inherited and that differences in educational and occupational careers are largely accounted for by these inborn differences in capacity. Selective and/or differentiating measures have to be taken in order to cater for the elite. A comprehensivization of educational opportunities may easily lead to a lowering of standards and tends to be detrimental to the most able students. Those who have taken a strong hereditarian view have sided with those who oppose structural changes in the educational system from elitist or selective to a more comprehensive or flexible one.

On the other hand, we have the more reconstructional or radical conception, according to which education and interventions in environmental conditions by means of social and economic policy can have a strong impact and thus play an important role in developing human potential. In his presidential address to the American Sociological Association in 1961 Faris was a spokesman of such an optimistic ideology when he said that policy measures in the social and educational domains can "lift a nation by its bootstraps" (Faris, 1961, p.839).

According to the view taken by the present author, in framing educational strategies one has for pragmatic reasons to adopt an environmental view based on the conviction that education can bring about *significant* and *worthwhile changes* in students. The educator, both as researcher and teacher, has to be an environmentalist in order to justify his existence. This means then that the social scientist who sets out to investigate educational problems relating to individual differences should focus his efforts on what specific environmental factors can do in changing student behaviour instead of devoting his time entirely to what the "genetic limitations" are. It should be kept in mind that so far no bridge has been built between genetics and psychology in terms of factual knowledge about the connections between specific skills that are crucial for scholastic performance. Thus, there is no tangible connection between eventual genetic factors and directly observable intellectual behaviour. The more successful the social scientist becomes in observing and assessing what is tangible, i.e., the various environmental variables and the behaviours related to them, the more so that observed behaviour can be attributed to environmental circumstances. The margin of ignorance, i.e., of behaviour variance unaccounted for, which has traditionally been attributed to "inborn" factors, thereby becomes increasingly smaller.

* * *

There is now quite a lot of evidence to show that sheer increase in participation in education will not have the strong equalizing effect it was expected to have, neither in terms of opportunity to enter the system nor in terms of attainments. Evidently, universalization of education at the secondary stage, for instance, levels out almost entirely inequalities in access, but there are in the educational system features which counteract universalization of access and tend to increase differences in attainment. These features have been briefly taken up above as dilemmas or incompatibilities.

When the broadening of opportunities, particularly for secondary education, did not have the expected effect, attention was turned to the years preceeding entry to regular schooling. Educational provision during pre-school years and compensatory action prior to or in connection with entry to school were thought to be solutions. Apart from universal provision for pre-school education, educational programmes for poor parents have been tried in order to improve educational services. It has been estimated that the extra services provided to white children in the U.S. by their parents in excess to those provided to black children by their parents amounted to some $1300 per pupil year (Carlson, 1972). This is the rationale for providing funds for compensatory efforts. The more children of low socio-economic status in a school district, the more operating funds for such and similar programmes are allocated.

Steps could be taken to improve the health conditions for children from underprivileged groups by providing supplementary proteins and vitamins during pregnancy and lactation. Another strategy which seems to hold promise has been tried out in the Milwaukee Project of infant education. A small group of mothers with IQ below 75 and with newborn children have been divided randomly into one experiment and one control group. Both mothers and children have had continuous educational treatment for a long period. After 66 months it is reported that the average difference between children in the control and the experiment group amounted to an astounding 30 points. The difference in language development was one and a half years (Education Daily, 1974, No.9). The treatment of the experimental group had apparently succeeded in offsetting the influence on the children of the retarded mothers. The mothers, on their part, were the subject of training in basic skills so that they could get and hold a job. This intensive project, from which so far very little has been reported in print, is of particular interest because it represents an effort of massive and continuous compensatory education, whereas the Head Start programmes were more or less brief episodes in the life of slum children.

* * *

A fundamental policy problem for most European countries in the last decades, and probably for the foreseeable future, is the traditional organisation of education, at the secondary stage in particular, in two parallel sub-systems. This is the dualism between vocationally-oriented and academically-oriented schools or programmes, which reflects the "one-dimensionality" of evaluating what is achieved by both the individual student and the school he is attending. The two systems have emerged from certain historical and social conditions; the compulsory, elementary school being a product mainly of the 19th century industrialization, and the academic secondary school with a long tradition going back to the Middle Ages preparing for the learned professions. This dualism is a product of a society that was almost entirely ascriptive in its allocation of social status. The selection and/or transfer at an early age to academic secondary education by and large determines the subsequent occupational career; decides whether it will fall within the blue collar or the white collar bracket. The built-in flexibility is almost nil.

It would be in order to be more precise at this point and ask the question, "Equality of opportunity for what?" Usually one implies, when talking about equalizing opportunities, the vertical climbing within the socially established educational hierarchy from which there are entries into the occupational hierarchy of prestige, status and income. There is, indeed, a tendency to rank both education and the ensuing occupations along one vertical dimension of academic excellence and prestige. Very often one overlooks the horizontal diversity of options which need not be strongly related to academic performance but reflect other types of interests (Holland, 1963). There are strong indications that by making the system more flexible and trying to avoid definitive choices before the end of secondary education at least, one can enhance the attractiveness of the horizontal options that no longer preclude a re-entry into the traditional academic "mainstream".

Another problem of flexibility relates to the possibilities of re-entering the system, once having left it. Those who have not by means of the "eleven-plus" been able to make it into grammar school in England or the Gymnasium in Germany have in the overwhelming majority of cases not been eligible for a further education qualifying them for the professional sector of jobs. The drop-outs, who have not completed a course and thus not obtained a certificate are not only at disadvantage on the job market but have great difficulties in completing the formal education which is the basis for their further occupational improvement and promotion. In various countries, provisions have been made in recent years for adults to extend their level of general education and thereby to close somewhat the "education gap" that has been created by the enrolment explosion during the last two decades. One of the pivotal ideas behind the system of "life-long" or "recurrent" education is to open the institutions of higher learning to adults with vocational experience, partly by waiving formal and uniform requirements for admission and partly by tailoring a system of "modules" of courses, which should fit the ad hoc needs better than the requirements of package courses wrapped up in degrees.

A Concluding Philosophical Note

It is striking to students of the debate on school reforms which are in most cases structural, that these reforms, particularly by those who are opposed to any change, have been conceived of as entirely pedagogical and not social problems. A change from a selective-elitist to a comprehensive structure is usually discussed in terms of "standards", i.e., in terms of measurable achievements. Concern is expressed about the possibilities of the most able students to develop up to their potential. Concerns are further expressed that teachers in undifferentiated classes would have to encounter increased workload and deteriorating discipline, etc. But the forces that have been pressing for structural changes, not least in terms of broadening access to secondary and tertiary education, are social and economic and the goals that the schools are supposed to achieve are by no means limited to merely cognitive ones. The schools fulfill important socialization tasks in our society which we have hardly begun to evaluate, since we have been so spellbound by the debate about what happens to the standards when steps are taken toward a "Comprehensivization" that will broaden opportunities.

Thus, educational policy should by no means be conceived of as operating in a socio-economic and political vacuum. It is, and should be closely related to the overall social policy. This relationship becomes particularly obvious when we begin to analyze the equality-meritocracy issue. One then begins to realize how the value climate stemming from the prevailing social and economic policy is reflected in the premium put on educated ability geared to growth and economic efficiency.

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A Comment on Husén

by

Kjell Eide

In the Scandinavian countries, probably also elsewhere, the name of Torsten Husén is strongly associated with the term "comprehensive". This association comes readily to mind when reading his paper "Strategies for Educational Equality". In this fairly short paper, he manages to comment upon, or at least hint at, most of the issues related to this vast subject. What remains for a discussent is mainly to provide some supplementary remarks, and perhaps to suggest some issues as more important than others.

Inequality between whom and on what

Inequality has many dimensions, depending upon what criteria we use to distinguish between potentially unequal groups. In the last year or two several official documents in my country have dealt with "inequality", not even bothering to explain that their sole issue is inequality between the two sexes. Previously, the term "inequality", used in a broad social context without explanation, would most certainly have referred to disparities between groups defined in terms of social class, occupational status, social origin or income level. In other countries differences between ethnic, cultural or religious sub-groups may be in the fore-front of the inequality discussion, and more recently differences between age-groups emerged as an issue. In addition, an underlying theme in discussions on educational equality is always differences in ability, talent, intelligence, etc.

Inequalities which for political/moral reasons are found inacceptable, are regarded as forms of discrimination to be removed or at least modified through political measures. Yet, what we regard as discrimination, changes with time. Not very long ago, inequalities related to social status were taken for granted, as part of the nature of things, and to many people it still remains so. Our ideas about what is discrimination in the relationships among ethnic groups or between the sexes have changed rapidly in recent years, and considerable doubts have arisen even about the obvious right of certain cultures to dominate others. The first signs have also occurred that we may be in for a revision of traditional views on obvious rights associated with high or low ability. Those rather rapid changes in general attitudes towards inequalities are in many ways a more interesting aspect of the discussion in recent years than the actual changes that have occurred in such inequalities.

If we look at the actual changes, however, recent trends vary considerably according to what inequality dimension we study. In my own country, the development towards equal educational attainment between geographical districts and between the two sexes has been steady and reasonably fast in the last decade or two. Ethnic differences have also been considerably modified in my country as well as in some others. According to some measures, we can also trace a certain tendency towards greater equality in terms of educational attainment for young people with varying social origins, though this trend is definitely slower than in the other inequality dimensions referred to above. Other countries appear to have had similar experiences. The rapid expansion of educational facilities has, however, tended to increase differences in educational achievement among age groups. On the other hand, the growing recognition of our traditional discrimination against what we term low ability groups in education may have become somewhat modified.

In our discussions of "inequality" it may thus be useful to distinguish more clearly between the criteria according to which we want to define potentially unequal groups or individuals. It would also certainly be of interest to examine why some group disparities appear more easily modifiable than others. This topic may be related to the equally interesting question of why certain inequalities are regarded as more acceptable than others. Yet, such issues are not the topic of this short paper.

We should, perhaps, also pay more attention to the choice of terms in which to measure inequality. Among economists, income is the obvious dimension according to which inequality is measured. There are some problems involved in this measurement, and not least in the aggregation of income over time.

Yet, the main short-coming of this measure is its underlying assumption of human beings as shaped in the image of "the economic man". In reality, man appreciates status, prestige, power and influence, as well as interesting work, favourable working conditions, good human relationships etc. Added to this may be such personal characteristics as health, knowledge and understanding, and many more.

Consequently, attempts are made by other social scientists to define inequalities in terms of the total "resources", in the broadest possible sense, controlled by or available to different individuals or groups. Such measures are certainly more appropriate in terms of what individuals in fact find desirable. Yet, such a concept of total resources makes explicit the aggregation problems which in the case of income are so well hidden that we tend to forget them. It is obviously unrealistic to assume that a specific set of different resources available to any individual will be attributed the same relative value by all individuals. In other words, the very doubtful assumption of a common scale according to which the situation of individuals or groups can be measured, comes out very clearly (1).

Examples of rather deviant value structures may be the traditional belief in virtue and happiness associated with poverty (mostly adhered to by groups not so poor), "back to nature" philosophies, "opting out of society" in hippie manner, strong emphasis on group solidarity as found in certain workers' collectives, etc. Clearly, measures of inequality in terms of general access to resources cannot pretend to be "objective" in the sense that everyone would agree to the degree of, or even the direction of inequality. There may still in our society, be sufficient correspondence between predominant value structures to permit the development of some widely acceptable indicators on inequality. Yet, there may be reasons for warning against too simplistic conclusions in this field.

One such danger is involved in the relative nature of inequality measures. At the one extreme, the difference between someone living at minimum subsistence level and someone being offered the half of that, may be regarded as rather fundamental. On the other hand, the difference between earning two millions or one million a year may not be regarded as essential, in spite of the relative difference being the same. Correspondingly, the difference in a developing country between a minority with four years of primary education and a majority with no education at all, may mean something quite different from the difference between a minority with thirteen years of education and a majority with nine years. The lesson to be drawn from this, is simply that we should perhaps be a little bit more careful before we draw definite conclusions about "increased" or "decreased" inequality in educational terms over time. This is partly an argument simply about the declining marginal value of money, but also an indication that "education" is a manifold phenomenon. A specific "year of education" is not necessarily equivalent to any other "year of education".

Finally in this section, it should be pointed out that the criteria we choose to measure inequality may in themselves have something to do with the equality issue. In an educational context, for instance, the question of inequality may relate less to attainment than to control over what is being attained. Offering a group equal opportunity to attain something to which the group attaches little value, but denying it services to which it really attaches great value, may be as discriminating as any inequality measured along scales of quantitative attainment. This is a point to which I shall come back later on.

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(1) Yet, failing ability to absorb even elementary lessons from welfare theory is illustrated by the fact that there are still people trying to develop aggregate indexes of social indicators assumed to be valid for all.

Equality and Social Mobility

As I understand Torsten Husén's paper, he discusses three increasingly radical concepts of equal educational opportunity: the traditional concept of equal opportunity in terms of access to education, the concept of equal outcomes in terms of educational attainment, and the concept of equal outcomes in terms of social position. Leaving for the moment the problems involved in meaningful definitions of "equal access", "equal attainment" and "equal social position", the increasing radicalism of such claims appears to be measured by the extent to which they contribute to social mobility. There is sufficient evidence to conclude, that equal opportunity of access does not automatically lead to equal educational attainment, and that equal educational attainment does not necessarily lead to equal social positions, whatever definitions we apply to those terms. We have reasons to believe, however, that progress towards a less ambitiously defined objective of this kind will also mean some progress towards the more ambitiously defined objectives, though the strength of such interrelationships is still under debate.

A more open question, however, concerns the nature of the relationship between social mobility created by such means, and the general degree of equality in the society. As I see it, a more equal representation of individuals with different social origins in the upper strata of educational attainment or social positions does not necessarily reduce inequality in society as a whole. There is a substantial amount of historical evidence that could even be used as an argument for the opposite being true.

Offering an opportunity for potential leaders of underdog groups to join the higher social strata in society, is a well-known strategy for keeping such groups "under control", at a low level in the social hierarchy. The long-term effects of such a strategy may be debatable, but it is not unlikely that it reduces the chances of access to power for the underdog group as a whole.

This is why data on the extent to which education contributes to social mobility for individuals from different groups in society, are largely irrelevant to the question of equality or inequality in society as a whole. I fail to see that studies measuring benefits for selected individuals, e.g. in terms of individual income differentials created by education, can provide any basis for significant conclusions about the impact of education on equality for major societal groups. If we want to study the latter, we shall at least have to look for historical evidence, bringing out relationships between growing levels of mass-education, and the emergence of such new powerful political groups as the organized farmer movements in several countries, and the labour movement in Western Europe. It would appear that the access of a few individuals originating from such groups to high social positions is relatively marginal in this context, as compared with the effects of general education for all. At a higher educational level, similar conclusions may be drawn in the context of the recent development towards industrial democracy in some countries.

Going back for a moment to the question of measures of inequality, most observable scales of standard ranking can be seen as political/cultural phenomena, determined by the predominant social groups within a society. The at least partial acceptance of such standards by other groups is a consequence of the established reward structure in the society, and also to a great extent the result of a socialization process based on the value structures of predominant groups, in which education plays an essential part.

This is clearly seen in the current debate about sexual roles. Does equality between the two sexes mean that women shall have the right to exercise male roles to the same extent as men? Or does it mean that societal role expectations should be influenced by features of what we today regard as "feminine roles"? In more generalized terms, can an underdog group be said to have obtained equality unless value structures and performance standards predominant within such a group, also manage to influence the general value structure and performance scales of the society in question?

Similar questions are well known from the debate about equality between social, racial and religious groups, and they may also emerge from current discussions about "the generation gap". Which groups shall be legitimized to define the performance standards according to which rewards should be distributed?

Such questions are clearly related to question of social mobility and equality. Increased social mobility may mean increased acceptance also by underdog groups of values and performance standards set by predominant groups in society. Equality of opportunity may be gained at the cost of sacrificing one's own performance standards, which quite often means acceptance of a permanent underdog role of the group as a whole. Viewed in this light, "positive discrimination" may simply be a compensation for such costs. It is the price paid by predominant groups for maintaining their value structures and performance standards as those valid for society as a whole.

The future societal context

Strategies adopted for dealing with equality issues implicitly presuppose essential features of the future society. One may accept, for instance, the concept of a post-industrial society such as outlined by Daniel Bell, in which predominant features of a contemporary industrial culture are enlarged to encompass all fields of productive activities. Even the service industries, which according to the vision will employ the large majority of people, will be run according to principles developed in the industrial world of today, with ever increasing job specialization organised in hierarchical decision-making structures within the framework of semi-automised control systems.

The obvious consequence of this vision is a further increase in the dichotomy between a work situation which for the large majority has lost all meaning, and increasing amounts of spare time (and consumption) to compensate for this. In addition, a steadily growing proportion of the grown up population will not be able (or willing) to satisfy the requirements of the production systems. They will live as consuming individuals only, being compensated through social regulations for not being admitted to work life.

It is conceivable that a future society may develop incentive structures and socialization processes that would make most people willing to accept the value structures reflected in such a system, and the performance standards established by it. Two essential questions remain, however: is a system of this kind necessary, and is it desirable?

The first question is empirical, and can firmly be answered by "no". There is sufficient evidence today to permit a rejection of the idea that a society of this kind is a "technological necessity". Even if we maintain high aspirations in terms of economic production (which may be doubtful enough), we know that high levels of economic performance can be compatible with fundamentally different ways of organising work life. Even today, we may have gone too far in the direction of job specialization and the building up of hierarchical decision-making structures aiming at internal consistency and predictability within systems. Future developments may take us much further away from such out-dated ideas about how the productive activities of human beings should be managed. The increasing share in the economy of service activities will strengthen this tendency, at least if we maintain that they should really offer service to their clients.

The implication of this is also that we do not have to think of leisure time consumption as a compensation for a performance at work without meaning. We also have the option of organising work life in a way that will exclude rather fewer adults than today, instead of more.

The question of whether this latter alternative is preferable, is basically a political one. It is, however, strongly related to the question of equality, as it represents the only alternative which makes a policy for equality feasible.

It offers opportunities for more pluralistic scales of performance to determine the distribution of resources, of which access to power may prove to be the most important, while income differentials may serve more as compensation for low scores on other resource dimensions. It offers, in other words, a possibility to avoid the artificial preservation of value structures dominating our industrial societies as an unhappy inheritance to be passed on to our post-industrial future.

Some implications for educational policies

In principle, the consequences for educational policies are fairly simple. If we want education to serve as a means to achieve greater equality in society, along whatever dimension we regard as important, we should be more concerned about what education offers than with its effect on social mobility. The main content of "positive discrimination" would have to be in terms of increased control over education by the groups one would like to favour, rather than increased access to a kind of education serving purposes other than their own.

Clearly, such policies would have little meaning if such changes in power were to concern education alone. Corresponding changes would have to occur in work life and in social life more generally. Only then would new standards of educational performance be valid outside the sheltered world of educational institutions. Yet, what happens within education may have a decisive role to play in promoting, or possibly hampering, corresponding developments outside.

Operational strategies will hardly be as clear-cut as indicated here. In many cases, a compensatory policy in a more traditional sense may be needed along with a gradual change in the power structure determining the purposes served by the school. Such compensatory measures would, however, have to be much more profound than the lip-service payed to such principles in most of our countries. Our current efforts to counteract some of the worst imbalances in terms of favouring the strong, can hardly influence educational equality more than marginally.

To achieve this, however, it seems necessary that we accept a bit more whole-heartedly that our present strong discrimination of those we regard as "less talented" may have to be reversed. Probably, the current inequalities according to the ability dimension, in terms of educational resources offered, is the real root of most obstacles to a development towards equality in more important dimensions.

Distributional Impact of Methods of Educational Finance

by

Maureen Woodhall

1. Introduction

The most obvious way to increase equality of opportunity in education is to remove the financial barriers that may prevent the children of the poor from entering or completing any course of education. Thus, in most O.E.C.D. countries, the earliest attempts to overcome inequalities of access to higher education consisted either of reductions or abolition of fees, or provision of scholarships for needy students. When it was realised that this did not guarantee equality of opportunity, since living expenses and foregone earnings still represented a financial obstacle for those from low-income families, student aid policies were developed, so that no student should be discouraged from completing his education on grounds of cost, either direct or indirect.

Many policy-makers still believe that government subsidies to universities or other institutions to reduce or abolish tuition fees, combined with grants to needy students to cover their living expenses, is the best way of achieving equality of opportunity. However, this traditional policy has recently been subject to criticism on grounds of equity and social justice. The critics point out that this method of financing higher education is often unfair, in terms of the distribution of the costs and benefits of education, and that it does little to equalise life chances, since it concentrates subsidies heavily in one particular sector of education, and on one age group, leaving those who are too old, or unqualified to enter higher education, to subsidise the more fortunate minority. Because higher education has expanded so rapidly in recent years, and because it offers financial rewards in the form of higher earning capacity, this means that older tax-payers, and those with average incomes, are subsidising, through taxation, the young who will enjoy higher than average incomes in the future, as a result of their education; and because students from upper income families are so heavily represented in universities and other institutions of higher education, this means that high income families are subsidised by those with lower incomes.

Therefore, a lively controversy has developed between those who feel that the goal of equality will best be served by further extending public subsidies, in order to provide free education for all at the post-secondary level, as well as at the compulsory stages of schooling, and those who advocate maintaining, and in some cases increasing, private contributions to the costs of higher education, in order to achieve an equitable distribution of financial burdens and benefits. This controversy has been sharpened in the last year or two by the debate on recurrent education. In most O.E.C.D. countries at present, methods of financing education are ill adapted to a system of life-long or recurrent education, since students in traditional, full-time higher education are usually more heavily subsidised than adults undertaking part-time education or retraining, and financial aid for students is usually provided at levels and terms which presuppose that they are young, with no dependants. Thus, adults who did not have the same opportunities for higher education as today's youth, may be discouraged from undertaking education or training later in their working lives.

A number of proposals have therefore been put forward recently for changing present systems of financing higher education, in order to achieve greater equality, and to provide individuals with a wide range of opportunities for combining higher education or vocational training with employment. To some extent, a division of opinion has arisen between those who believe that existing sources and methods of finance can be adapted and extended to increase the range of options open to individuals, and thus promote greater equality of access to higher education, and at the same time to make the distribution of costs and benefits among different social groups and age groups more equitable, and those who believe that a total transformation of methods of financing is required. This paper begins with a review of existing financial arrangements in O.E.C.D. countries, and then attempts to assess the effects of alternative methods of finance on inequalities in education, and looks at some of the proposals that have been made for changing the distribution of costs and benefits of higher education between individuals and society, or between different income and social groups.

2. General Trends in financing higher education in O.E.C.D. countries

The most striking trends in the finance of higher education in member countries in recent years is the rate of growth of financial resources devoted to higher education, and the increase in the proportion of expenditure coming from public funds, particularly from central government. The rapid expansion of higher education in the 1950s and 1960s meant that public expenditure rose very markedly and expenditure on higher education now accounts for 25 per cent of the total education budget in some O.E.C.D. countries, and in the United States higher education receives more than a third of all expenditures on education, which amounts to 2.5 per cent of G.N.P.

The great bulk of this increase in expenditure has been financed from government sources, rather than by individuals, so that the balance between public and private finance has shifted dramatically away from the individual student and his family, towards the tax-payer as the main provider of finance for higher education. In the United States, students or their families provided more than 60 per cent of all expenditure on higher education in 1939, but only 35 per cent in 1970 (1). In Britain, student fees provided about a third of university income in 1938 but now the proportion is about 8 per cent, and much of this is covered by grants to students from local authorities. In other O.E.C.D. countries, private expenditure is even less important; in France 95 per cent of university income comes from public funds, and in Scandinavia, where tuition fees have been completely abolished, the proportion is even higher.

There are many reasons why governments have increased their share of expenditure on higher education. In some cases, the main justification has been economic: to prevent shortages of qualified manpower which would threaten economic growth. However in recent years, as shortages of graduates have become less obvious, and in some countries surpluses have developed, the economic arguments for increasing public subsidies for higher education have been emphasized less than the social objective of increasing equality of opportunity.

Therefore, although the objectives of public policy may differ, there has been a general tendency for governments to increase the level of subsidies for higher education. A large proportion of these subsidies has gone directly to institutions, to cover the costs of tuition, and a smaller proportion has gone to students, to help finance fees, where necessary, or living expenses. The exact balance between public and private sources of finance, and between subsidies to institutions, and to students, and the methods and provisions of student aid policy differ substantially between different countries. The following sections give some indication of the range of policies which exist in different O.E.C.D. countries, with respect to financing tuition costs and student maintenance.

3. Financing Tuition Costs

In all O.E.C.D. countries a high proportion of the current expenditure of universities is financed directly, or indirectly, by government, but there are many different patterns. Table 1 summarises the main sources of finance for higher education in a number of countries.

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1) Carnegie Commission on Higher Education, Higher Education: Who Pays? Who Benefits? Who Should Pay? A Report and Recommendations. New York: McGraw-Hill, 1973, p.31.

In most European countries, higher education is provided in public institutions, where tuition fees are either very low, or non-existent, and which derive about 95 per cent of their income from government grants; in Canada, Australia and the United Kingdom, universities are mostly private institutions, but receive over 70 per cent of their income from public funds. In the U.S.A. and Japan there are both public and private institutions. This means that there are big differences in the proportion of university income derived from fees. In most European countries less than 5 per cent of the current income of higher education institutions comes from fees; in Australia, Canada and Ireland the proportion ranges from 15 to 28 per cent, while in the United States and Japan there is a marked difference between the public and the private sector, and in the latter, fees account for 40 to 60 per cent of income. Even in public institutions in the United States, fees provide 20 per cent of university income, whereas in Japanese public universities, fees account for only 3 per cent. However, these figures do not by themselves show the balance between public and private finance for higher education. In many countries students receive substantial grants or loans, which partly or completely cover the cost of fees. Although fees account for 20 to 60 per cent of the income of American colleges and universities, students and their families contribute less than this to the cost of their education, since student aid, which amount to $2,300 million in 1969, covered almost a quarter of all private expenditures on higher education (1). Similarly in Britain, although 8 per cent of university income came from fees in 1967-8, a very high percentage of students have their fees paid in full by local authorities.

Therefore, what the figures in Table 1 show is not so much the balance between public and private finance, but differences between countries in policies of direct aid, through institutional grants, and indirect aid, through grants or loans to students. In countries like Canada, the United States, Ireland or the United Kingdom, a greater proportion of public finance is in the form of indirect aid to students **than** in most of Europe. This may have important implications for the distribution of the costs and benefits of higher education between different income groups in society, since direct subsidies to institutions are enjoyed equally by students from all income groups, whereas grants may be means-tested. This may affect the equity of the financing system, but this will be examined in more detail below.

The fact that in the U.S. and Japan there is a public and a private sector of higher education provides some interesting contracts. In the U.S.A. enrolments in public institutions have increased more rapidly than in the private sector in recent years, but in Japan it is private colleges which have grown most rapidly.

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1) Carnegie Commission, op.cit.

Table 1

Sources of finance for tuition costs in higher education in O.E.C.D. countries (circa 1968)

per cent of total income

Country and year		Public		Private	
		Central government	State or local government	Fees	Endowments and other sources
Australia	(1968)	40.5	34.5	15.3	9.7
Belgium	(1962)	79.0	1.0	4.0	16.0
Canada	(1966)	23.0	43.0	22.0	12.0
France	(1968)	95.0	-	5.0	-
Germany	(1965)	90.6		3.7	5.7
Ireland	(1965)	65.9	0.9	28.5	4.7
Japan:	(1965)				
Public		86.2	10.4	3.4	-
Private		2.0	0.2	42.0	55.4
Switzerland	(1968)	42.5	48.8	3.7	5.0
United Kingdom* (universities)	(1967)	81.8	1.0	8.3	8.9
United States*:	(1965)				
Public		10.6	61.7	20.2	7.5
Private		5.9	2.3	60.4	31.4

Source: Figures furnished by O.E.C.D Secretariat.

Notes: * excluding research grants.

There are other interesting differences between the public and the private sectors, which are summarised in Table 2. In the U.S.A. private universities take only 30 per cent of the total student population, and receive over 90 per cent of their income from fees and endowments. Private institutions also have higher fees, unit costs and staff-student ratios than public institutions. In 1971 average tuition fees in private universities were over four times the level of fees in public institutions, and between 1960 and 1972 private fees rose considerably faster than fees in public universities. In Japan, however, it is the public sector which caters for an "elite" minority of students, and has much higher costs per student, and a very much better staff-student ratio. The American and Japanese pattern of higher education shows that where both public and private institutions exist there may be considerable differences in quality, and therefore marked inequalities of provision for different groups of students; however, it also shows that it is impossible to generalise about the effects of public and private finance on quality of education, insofar as quality is measured by such factors as unit cost and staff-student ratio. In Japan, the students at public universities are highly subsidised, and pay fees only about a fifth of the average in private universities, although their education actually costs four times as much. In the U.S. the student in public institutions also pays about one fifth of the average fee charged in private universities, but his education costs considerably less than the average expenditure in the private sector.

It is because such inequalities may develop when public and private sectors of education exist side by side, with considerable differences in the level of fees they charge, that many countries have abolished fees in order to promote greater equality of opportunity. There is a serious danger that if there are marked differences in the level of fees charged in different universities, students from low-income families will be forced to choose inferior courses, charging lower fees. In America there is a clear relationship between the family income of students, and their choice of college, as shown in Table 3. A majority of students from low-income families are in public institutions, which tend to have lower expenditure per pupil than private colleges, and also lower staff-student ratios, average teacher salaries, and lower ability students, as measured by freshmen aptitude tests. The relationship between income level of students and their choice of college is even more obvious if colleges are compared in terms of fees charged. If the least expensive and most expensive colleges are compared, we find that 37 per cent of the students from the lowest income category were attending the cheapest colleges, but only 19 per cent of students from the top income group; on the other hand the proportion of the lowest income students who were in the most expensive colleges was only 13 per cent compared with 34 per cent of students from the highest income group. The difference is most marked between students from the $3,000 to $4,999 income group, and those with a family income of $15,000 or above.

Table 2

Comparison of public and private sectors of higher education in the United States and Japan

1968

Characteristics of sector	United States		Japan	
	Public	Private	Public	Private
% of total students	70	30	28	72
% of income (excluding research grants) from:				
Fees and endowments etc.	27.7	91.8	3.4	97.8
Government sources	72.3	8.2	96.6	2.2
Average cost per student (in U.S. $)	2,182	3,421	1,700	425
Number of students per full time teacher	16.1	11.0	9.0	26.3
Average annual salary per teacher as % of G.N.P. per capita	280	320	175	120
Average fees (in U.S.$)	278	1,313	52	267
Other private expenditure per student(in U.S.$)	832	1,017	111	136

Source: Figures furnished by O.E.C.D. Secretariat.

Table 3

Relationship between family income and choice of college (U.S.A.)

Characteristics of college	Annual family income Less than $3,000	 $3,000 $4,999	 $5,000 $7,499	 $7,500 $9,999	 $10,000 $14,999	 $15,000 or over	 Total
	Percentage of income group attending each type of institution						
Level of fees:							
Under $250	37	35	31	28	25	19	27
$250 to $499	23	37	30	38	31	27	31
$500 to $999	18	16	17	13	16	15	15
$1,000 or over	13	9	15	17	24	34	21
Not reported	.11	4	7	5	4	4	5
Total	100	100	100	100	100	100	100
Type of Control:							
Public	57	69	60	66	56	46	58
Private	33	27	34	30	40	50	37
Not reported	11	4	7	5	4	4	5
Total	100	100	100	100	100	100	100

Source: R. Bolton, "The Economics and Financing of Higher Education: An Overview" in A Compendium of Papers to the Joint Economic Committee of Congress, The Economics and Financing of Higher Education, Washington, D.C., Government Printing Office, 1969, p.64.

The proportion of the lower income group attending a college with fees less than $500 was 72 per cent, compared with only 46 per cent of the top income group. Thus there is a clear relationship between family income and choice of college, even though student aid enables some of even the poorest students to pay high fees.

However, even the complete abolition of fees does not guarantee equality of opportunity for students from different social groups. In Sweden, for example, surveys in the early 1960s showed that even though fees were no longer charged in higher education there was still a tendency for working-class students to choose short, vocationally oriented courses, whereas the children of university graduates or professional parents were rather more likely to choose longer university courses (1). This reflects the fact that even when there are no direct charges for tuition, higher education is not "free", if students have to sacrifice earnings, and meet their own living expenses. If the cost of higher education is measured in terms of total resource costs, including earnings **foregone** as well as money expenditure, then the forgone earnings of students represent about half the total cost of higher education in more countries (2).

Therefore, student aid to finance maintenance costs may be just as important as direct government subsidies to finance tuition costs, in reducing inequalities of access to higher education.

4. Student Aid

In countries where universities charge tuition fees, financial aid may be given to help students to pay tuition costs. But even if students do not have to meet the direct costs of higher education, they or their families have to bear the indirect cost of **foregone earnings**. Because this may discourage some students, particularly those from low-income families, from continuing their education, most governments now provide student grants or loans, or special programmes of part-time work for students. Aid is usually dependent on ability or financial need, but there are considerable variations in policy. It is often difficult to find a precise statement of objectives, which makes it difficult to evaluate the effectiveness of student aid policy, since economic and social objectives, efficiency and equity are given different weight in different countries, and in fact these different objectives may sometimes conflict. Because of differences of objective, as well as historical or political traditions, there are considerable variations in methods of financing students in O.E.C.D. countries. Forms of student aid include:

(a) scholarships or grants to students, e.g. the

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1) M. Woodhall, Student Loans: A Review of Experience in Scandinavia and Elsewhere, London: G. Harrap, 1970, p.116 and 136.

2) G. Psacharopoulos, Returns to Education: An International Comparison, Amsterdam: Elsevier, 1973, p.126.

United Kingdom, United States (Basic Educational Opportunity Grants Program);

(b) repayable loans at low rates of interest, e.g. Canada, Denmark, Norway, the United States (National Defense Student Loan Program);

(c) interest subsidies and guarantees for loans from private banks, e.g. Finland and the United States (Guaranteed Loan Program);

(d) special employment opportunities for students, e.g. the United States (College-Work-Study Program);

(e) income tax credit for students' parents, whilst the student is in higher education, e.g. the United Kingdom.

The type of aid given to students and the proportion of students receiving financial aid from public funds in various O.E.C.D. countries is shown in Table 4. This shows that the proportion of students receiving aid ranges from 10 per cent to 95 per cent. In some cases aid is intended only to cover direct costs, such as fees, books or travel to and from university, but elsewhere it is intended to cover a large proportion of students' maintenance expenses.

In the United States it was estimated that in 1969 total student expenditure on fees, books, board and lodging, or living expenses at home, equalled about $10 billion, and total student aid, in the form of grants, special employment programmes and loans including veterans' benefits equalled $2.3 billion. Earnings foregone by students were estimated to be about $23 billion (1). In the United Kingdom in 1969 earnings foregone by students averaged £755, of which £170 would have been paid in income tax, etc., leaving net earnings foregone of £580. The average maintenance award for students was £265, and in addition parents received income tax relief averaging £70, so that the total contribution from public funds amounted to over 50 per cent of net earnings foregone compared with only 10 per cent in the United States.

In Scandinavian countries grants and loans from government funds account for 20 to 70 per cent of students' expenditures on maintenance. In Sweden, for example, in 1967 state aid, in the form of grants and loans, covered 70 per cent of the average expenditure of unmarried students, and 56 per

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1) Carnegie Commission on Higher Education, op.cit., p.50.
2) The sources for these calculations were: Carnegie Commission on Higher Education, op.cit., p.32 and 50; Department of Education and Science, Output Budgeting for the Department of Education and Science, H.M.S.O., London, 1970.

Table 4

Financial aid to students in O.E.C.D. countries (circa 1968)

Country	% of students receiving aid	Form of aid
Australia	35	Grants
	35	"Pre-salary payment" committing student to particular employment
Canada	15	Grants
	7	Loans, at 5 - 8 per cent
Denmark	50	50 per cent grant, 50 per cent interest-free loan
Finland	50-60	Small number of scholarships; plus government guarantee and interest subsidy for loans from commercial banks at 3 per cent
France	25	Grants
Germany	20-30	Grant plus loan
Italy	10-15	Grants
Japan	12-20	Loans
Netherlands	30-40	Grants plus interest-free loans
Norway	70	Minimum grant ($240) plus loans at 4½ per cent
Sweden	72	Minimum grant ($348) plus loans repayable in terms of constant money value
United Kingdom	95	Grants
United States	7 (about 45 in 1972)	Grants, employment programmes and loans

__Source__: Figures furnished by O.E.C.D. Secretariat.

in the case of married students, the balance coming from part-time employment and parental contributions (1). However, the costs of maintenance are considerably lower than the foregone earnings of students, so that student aid covers less than half the average earnings foregone of students in Scandinavia.

These figures show that even when student aid is taken into account, the magnitude of earnings foregone means that students and their families still make a significant contribution to the total resource costs of higher education. The Carnegie Commission estimated that the distribution of money expenditures on higher education was roughly two-thirds from public funds and one-third from students and their parents. However, if earnings foregone are included in the total cost of education, the proportions are reversed, and students and their families bear two-thirds of the burden, compared with one-third from government sources (2). In Canada, it is estimated that students contribute, through payment of fees, living expenses and sacrifice of earnings, about 55 per cent of the total cost of university education (3).

This means that unless student aid is particularly generous, students from low-income families may still be discouraged from entering higher education by the indirect costs. On the other hand, if financial aid is made available equally to all students, to help cover maintenance costs, this means that students from wealthy families are being doubly subsidised, first by government grants which reduce the costs of tuition, and secondly by student aid. Thus there is considerable disagreement about whether levels of student aid should vary according to the income of students, as well as about the form such aid should take. In the U.S.A. and Britain, the principle is widely accepted that student aid should vary according to the income of parents. This can lead to anomalies; in Britain there is considerable dissatisfaction among married students, since parental income is still taken into account when assessing eligibility for student aid, while other students complain that parents may not in fact make the full "parental contribution" that is assumed for purposes of assessing maintenance grants. Nevertheless, it is argued that this is still preferable to making general subsidies to all students, which would give an unfair

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1) M. Woodhall, Student Loans: A Review of Experience in Scandinavia and Elsewhere, Harrap, London, 1970, pp.112-4.
2) Carnegie Commission, op.cit., p.1.
3) G. Cook, D. Stager, Student Financial Assistance Programs, With Special Reference to Ontario, Toronto: Institute for the Qualitative Analysis of Economic Policy, 1969, Table 1. 6.

advantage to the most wealthy. On the other hand, in Scandinavia it is often argued that students in higher education should be treated as financially independent of their parents, and therefore in Sweden and Finland, eligibility for financial assistance depends only on the student's own income, and not that of his parents. This is partly a reflection of the fact that Scandinavian students tend to be older than students in Britain or America, as school starts at 7, and university courses may last for seven or even nine years, so that it is not uncommon for students to graduate at 28.

The other controversial issue of student aid policy is whether financial aid should be in the form of grants or loans. In Britain the idea of student loans has been rejected by successive governments, on the grounds that loans would discourage working-class students and women, would increase wastage rates by encouraging students to seek part-time work to reduce their debt, and would be expensive and difficult to administer. On the other hand, experience in Scandinavia and the U.S. suggests that loan schemes are perfectly feasible, students are willing to borrow to finance direct or indirect costs of education, private banks are willing to lend to students if they are supported by a government guarantee, and the terms of the loans and their repayment can be varied to allow for the special needs of the low-income students, women or graduates entering particular occupations.

The terms of loans and their repayment vary considerably between countries. Almost all the government-sponsored loan schemes provide an interest subsidy; for example, loans in Denmark are interest-free, in Norway interest is charged at 4 ½ per cent. In Sweden graduates do not pay interest on loans, but repay the debt in terms of money of constant purchasing power, and the amount of repayment is automatically linked with the cost of living index. These interest subsidies are very significant, since private banks charge as much as 9 to 10 per cent. The length of time allowed for repayment varies from ten years in the United States, to over 20 years in Sweden, where the requirement is that graduates must complete repayment by the age of 50. In most cases, repayments are excused in the case of severe illness, and postponed in the event of unemployment or serious financial difficulties. In Sweden there is an "insurance" element built into the system, which means that graduates whose incomes fall below a stated minimum in any year are automatically excused repayment.

There is now sufficient experience of actual loan schemes to allow some evaluation of their effects. For example, there is no evidence that loans necessarily increase wastage, or discourage women. In Scandinavia, high wastage rates are caused by many factors other than finance, for example the method of selection of students, and the fact that some of the apparent "drop-out" consists of students moving from one faculty to another, or simply interrupting their studies; and the high rates of female participation in higher education in Finland demonstrate that loans are not an automatic disincentive to women (1).

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1) M. Woodhall, Student Loans: A Review of Experience in Scandinavia and Elsewhere, Harrap, London, 1970.

The real cause of disagreement between advocates and opponents of loans concerns the implications of student loans for equity and equality of opportunity. Since one of the main objectives of student aid policies is to encourage participation of students from low-income families, this is a crucial question. Will students from poor homes be discouraged from entering higher education by the prospect of a long-term debt, or will a loan scheme encourage them to enter, by removing financial barriers? Clearly the answer depends on what alternatives are available, and what are the terms of the loan. In the United States, the Federal Government operates two loan schemes; one is the National Defense Student Loan Program, which offers low interest loans, and is intended particularly for low-income students, and the other is the Guaranteed Loan Program, which provides government guarantees for commercial loans, and a much smaller amount of interest subsidy; the purpose of the latter programme is to extend the capital market for education to students from middle-income families. Accordingly, there is a considerable difference between the two schemes in their appeal and availability, which is reflected in the characteristics of borrowers. Fifty per cent of N.D.S.L. borrowers came from families with incomes below $6,000, compared with only 17 per cent of the G.L.P. borrowers. The contrast is greater still if we look at the proportion of students from each income category who borrow under the two schemes. In the case of the lowest income category 67 per cent of all students have loans, but only about 10 per cent of students in the highest income category. These figures are shown in Table 5. This demonstrates that loan schemes can be designed to appeal to poor students, and might suggest that U.S. student loans are successful in promoting greater equality of opportunity. On the other hand, Hartman's recent study of these loan programmes for the Carnegie Commission concludes that they have made only a modest contribution to equalising enrolment rates. Very wide disparities still exist between income groups. For example, in 1967-8 a third of all American families with college age children had incomes below $6,000, but the proportion of students from this income group was 17 per cent. If all those who had benefitted from the NDSL and GLP loan programmes had dropped out (i.e. assuming that they would not enrole if they could not have a loan) the proportion would have been 14 per cent. Thus the loan programmes may have increased the proportion of students from the lowest income category by 3 per cent, but the gap between the actual distribution of students, and the distribution if students were distributed by income in the same way as all families is still 16 per cent (1). Therefore Hartman concludes that the loan programmes are not very successful in promoting equality of opportunity.

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1) R. Hartman, Credit for College, McGraw Hill, New York, 1971, p.49.

Table 5

Students borrowing under U.S. Federal Government loan schemes, by family income

Gross family income ($)	% of borrowers in each income group		All borrowers as % of students in own income class
	N.D.S.L.	G.L.P.	
0 - 2,999	22.4	8.8	62.8
3,000 - 5,999	27.8	8.8	24.8
6,000 - 7,499	16.0	10.1	18.9
7,500 - 8,999	13.1	10.1	16.6
9,000 - 11,999	13.8	22.1	17.6
12,000 - 14,999	5.0	19.9	15.1
15,000 and over	2.0	20.3	9.8
Total	100.0	100.0	18.4

Source: R. Hartman, Credit for College, McGraw Hill, New York, 1971, p. 48.

However, research in the United States and in Scandinavia shows that inequalities of participation between social classes have many causes, for example selection methods in secondary education may eliminate many working-class pupils, so that student aid policy, whether based on grants or loans, can make only a limited contribution to equality of opportunity. The most generous policy of financial aid to students would not, by itself, ensure equality of opportunity, because the proportions of pupils leaving secondary school without university entrance qualifications is so much higher among working-class than among middle-class pupils. For example, in Scandinavia, several surveys have shown that selection for the gymnasium, where pupils take the matriculation examination necessary for university entrance, is subject to the same social class inequalities as access to higher education. This means that policies such as the introduction of comprehensive secondary schooling in Sweden or the provision of grants for secondary school pupils in Norway and Sweden, may be just as important as the provision of financial aid for students in higher education. Similarly in Britain it has been argued that attempts to equalise opportunity by giving grants to students in higher education are misguided, since it is at the age of 15 that the financial barriers to participation in higher education begin, when pupils or their parents must decide whether to bear the indirect cost of earnings foregone for three years, in order to gain university entrance requirements. Blaug argues that a system of grants for 15 to 18 year-old secondary school pupils, combined with loans for university students, would have a greater impact on equality of opportunity, than the present system of grants for students who have actually entered higher education (1).

At the same time, the choice between grants or loans to students raises the question of equity. Higher education is a profitable form of investment for the individual, and because of government subsidies, private rates of return are higher than social rates in all the countries for which estimates are available (2). This means that the average taxpayer is subsidising those who will, in the future, have higher than average incomes as a result of their education. It also means that the student in higher education is treated more favourably than those investing in other forms of human capital, who receive smaller subsidies from public funds. The argument for providing at least part of the finance in the form of a repayable loan is that this does not involve so great a redistribution of income as a system based solely on grants.

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1) M. Blaug, *An Introduction to the Economics of Education, op.cit.*, pp.293-298.
2) G. Psacharopoulos, *Returns to Education: An International Comparison*, Amsterdam: Elsevier, 1973.

However, this is only part of the wider issues of the distribution of the benefits and the financial burdens of higher education. The redistribution effects of all government subsidies for higher education need to be assessed, and the effects of student aid policy need to be evaluated alongside the effects of institutional subsidies, rather than examined in isolation. The question of the distribution of costs and benefits under existing financing systems, and the implications for equity and equality of opportunity will be the subject of a later section. Meanwhile another problem of distribution of benefits of student aid programmes must be mentioned. In most countries the student aid system was designed to give financial assistance to students who entered higher education immediately after leaving school, or after a short interruption, but is not necessarily adapted to the needs of adults who wish to re-enter education after a period in employment. In the past the number of such people was small, but the recent wave of interest in recurrent education as a possible way of correcting imbalances in access to higher education has drawn attention to the problem of finance. Therefore before turning to the wider question of the equity of present methods of finance, we must briefly examine the availability of financial aid for adults.

5. Financing Higher and General Education for Adults

In several countries attempts have been made to extend the system of financial aid for students to meet the special needs of adults who wish to take a course of higher education some years after completing their full-time education. Two particular problems arise for such adults, even if they meet the educational requirements of the college or university. In the first place their living expenses are higher than those of an eighteen-year old. They may have dependents and financial commitments; certainly their earnings foregone are higher than those of a school-leaver. The other problem is that if financial aid is available in the form of a loan, they will have a shorter time in which to repay the loan than a graduate who took a degree immediately after leaving school.

Several countries make special provision for adult students, by offering slightly higher rates of assistance. In Britain for example, mature students receive on top of the normal student grant an additional £29 for every year of age over 25, up to a maximum of £145, and in addition they may receive dependants' allowances and an additional allowance if they maintain a home for their dependants while living in residence at a college or university. These conditions apply to students taking a first degree or other "designated courses" at colleges or universities, provided that they have not previously taken any full-time course of at least two years' duration. This means that adults who wish to obtain a second qualification after previously taking a two-year course, for example holders of a teaching certificate who wish to take a degree, or graduates who wish to change careers in later life, will not automatically be entitled to a grant. In addition, there are a growing number of courses, including attendance at a summer school of the Open University, courses run by the Law Society for graduates intending to become solicitors, and courses at residential colleges for adult education, which are not "designated courses" and which do not entitle students to a grant, except at the discretion of the Local Education Authority. Some authorities are fairly liberal about exercising this discretion, but standards vary between different local authorities and there is a tendency in periods of financial stringency for L.E.A.s to cut back the award of discretionary grants, which particularly affects adults. The National Union of Students is currently campaigning for the abolition of "discretionary grants", and wishes all students in full-time or part-time higher and further education to receive a grant automatically. It is estimated that this would add about £23.5 million to the total expenditure on students' grants, which in 1971-2 amounted to £174 million (1).

In Sweden, assistance with living expenses, in the form of a basic grant, supplemented by a loan, is available to all students up to the age of 45 in the case of long courses, or 50 in the case of courses lasting less than 2 years; but these age limits can be waived in special circumstances and it is government policy to be very liberal in such cases, so that an older person who applies for study funds is unlikely to be refused on grounds of age. Normally the loan must be repaid by the age of 50, but in the case of older students this can be extended to 65.

Another possible source of finance for adults who wish to re-enter education, or to combine education with employment, after leaving school, instead of entering full-time higher education, is income from employment, provided this can be combined with part-time study. In some countries part-time study and part-time employment are quite common, but in other countries full-time attendance is required or expected in most institutions, or part-time jobs may not often be available. In the U.S. one significant form of student aid is the provision of special employment for students under the Federal Work-Study programme, or College Job Aid Programmes. In 1970 this accounted for 12 of all aid to students. In Scandinavia, part-time employment by students is common, and is often encouraged by universities if relevant to the student's course. Special Labour Exchanges for students are operated in some countries and in Denmark and Sweden over 70% of all university students have some paid employment and approximately a third of students' income comes from part-time employment (2).

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1) Figures provided by National Union of Students and Department of Education and Science.

2) M. Woodhall, Student Loans : A Review of Experience in Scandinavia and Elsewhere, London: G. Harrap, 1970, pp.109-112.

However, in Britain most students are full time, and the vacations provide the only opportunity for employment for students, and the availability of part-time employment is very dependent on general economic conditions. In its recent campaign for higher grants, the National Union of Students argues that "students are at a disadvantage in finding jobs because of the short periods of work they can offer - and the high level of competition for the short-term work which they can take ensures that the pay is frequently well below the current average earnings level. ..... there are still over half a million unemployed people and finding vacation jobs is correspondingly difficult" (1).

6. Financing Vocational Training for Adults

A considerable proportion of the education and training undertaken by adults who have completed full-time education consists of vocational training, either combined with employment, or as a preliminary step to new employment. A great deal of on-the-job and in-service training takes place either provided, or partially financed, by employers. This has, for a long time, been the traditional way of providing initial training for apprentices. In Britain, about 120,000 young people enter apprenticeships each year, which represents about a quarter of all the young people under 18 who enter employment. In Germany there are over 1.2 million apprentices receiving training. However, there has been a significant trend in recent years towards the provision of more training for workers who are not covered by apprentice schemes, and there have been a number of attempts by governments to stimulate employers to increase the provision of vocational training for their employees.

In Britain the Industrial Training Act of 1964, amended in 1974, was designed to increase, and improve the quality of, vocational training by employers. The Act established Industrial Training Boards which originally had the power to impose training levies on all firms and to give grants for approved forms of industrial training. Thus the major purposes of the Act were to stimulate employers to pay for more training and to distribute the costs of training equitably between different firms in an industry. The levies imposed by different Training Boards varied from under 1% to 3.8% of wages and salaries, and grants were given for many different types of training. The levy/grant powers have now been modified so that employers who satisfy the Industrial Training Boards that they are providing adequate training do not have to pay a levy, but the Boards retain their advisory function, and a new Training Services Agency, set up in 1974, provides grants, financed from public funds, to encourage key training activities. It is difficult to measure precisely the effect of the Industrial Training Act, but there has certainly been an increase in the number of workers receiving training since 1964, and the

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1) National Union of Students of the U.K., Grants Review 1973/74, mimeo, 1974, p.3.

Department of Employment estimates that in 1971 about 2 million workers received some form of training during the year (1). The total cost of all forms of in-service training in Britain in 1970 probably amounted to between £600 and £1,000 million (2).

However, not enough is known about the distribution of the costs of training between employers and workers. Direct training costs, and fees for outside courses are paid by employers, who also pay the trainees' wages or salaries while they undergo training, but the trainees are also doing productive work, and in some cases may be paid less than the value of their output, which means that the worker himself bears part of the cost of his training by means of earnings foregone, whereas in other cases the full costs of the training fall on the employers. Because of the difficulty of measuring the money value of trainees' production, and in many cases the lack of accurate information about training costs, this is a question that cannot yet be answered in any country with any precision.

The other main form of vocational training in Britain is training for unemployed workers, or for those who wish to acquire new skills, now provided under the Training Opportunities Scheme established by the government in 1973 to provide training facilities for workers who are unemployed, made redundant, or have particular difficulties in finding a job, especially older workers, and young adults who have been in the labour force for at least three years, and have no skills or skills inappropriate to changing technology. While undergoing training, all trainees receive a tax-free training allowance which varies according to their age and number of dependants. A single man of 18 receives £8 a week, but a married man supporting a family could receive the equivalent of £30 a week while undergoing training of up to a year.

In France a number of government measures, culminating in the Act of 16th July 1971, have established a framework for continuing vocational education and training for workers. Under the Act of 1971 employers are required to allocate at least 0.8% of their total wages and salaries to training, and this proportion will rise to 2% in 1976 (3). At the same time, the government provides subsidies for some forms of vocational training, and actually sponsors some vocational training for adults, particularly for the unemployed, financed out of public funds. It is estimated that in 1972, the first year of operation

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1) M. Woodhall, "Investment in Industrial Training: An Assessment of the Effects of the Industrial Training Act on the Volume and Costs of Training", British Journal of Industrial Relations, March, 1974.

2) M. Woodhall, "Investment in Training in Britain", (mimeo.) OECD, Paris 1972, and "Adult Education and Training in the U.K.: An Estimate of the Volume and Costs of all forms of Adult Education", (mimeo.) OECD, Paris 1974.

3) L. Ter-Davtian, "The Link Between Education and Employment via Continuing Vocational Education: The Case of France", (mimeo.) OECD, Paris 1971.

of the Act, more than 1.5 million workers received some form of vocational training, at a total cost of Frs. 5,835. About 40% of this total was provided by private employers, who on average devoted just over 1% of their total wages and salary bill to training, while 30% was provided by the government in subsidies, and the remaining 30% was provided by the government to finance the training of civil servants and other government employees.

In Germany, under the Vocational Promotion Act of 1971 the government provides training grants for workers who give up their jobs in order to undergo retraining. The grants are generous, and consist of 80% of the worker's lost income, in addition to the payment of tuition fees and an allowance for books. These grants are financed by equal contributions from employers and employees which together amount to 1.8% of payroll. The training grants are subject to a means test, but in certain circumstances, if a trainee does not quality for a grant, financial aid may be provided in the form of a repayable loan; and in some circumstances financial aid can be given for workers to take correspondence courses (1). In 1970 almost 100,000 workers received grants under this Act (2), and total expenditure on training grants has risen from DM 572 million in 1970, to almost DM 1.5 billion, of which almost two-thirds consisted of subsistence payments (3). If all forms of post-formal vocational training are included, it is estimated that between 2.1 million and 2.7 million workers received some vocational training in Germany between 1965 and 1970 (4).

In Sweden there has been a remarkable increase in recent years in government spending on adult vocational training and re-training, which is termed "labour market training", and is regarded both as a means of alleviating the inequalities of opportunity in the past, and also as an essential element of Sweden's "Active Labour Market Policy", intended to prevent shortages of skilled labour, and reduce unemployment. Between 1960 and 1970 government expenditure on labour market training rose from Kr 71,000 to Kr 656,000 which was over 1% of all government expenditure (5), and the monthly average number of workers receiving training under the Labour Market Board rose from 6,600 in 1960 to 40,500 in 1970. This meant that the proportion of the labour force receiving labour market training rose from 0.3 to 1% (6). This is higher than the number, and percentage, of the labour force registered as unemployed. Altogether in 1969 a total of 68,000 workers received training provided and financed by the government in Sweden, out of a total labour force of under 4 million.

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1) British Association for Commercial and Industrial Education, Vocational Training in the European Economic Community, London: B.A.C.I.E. 1972, pp.37 and 103.
2) H. Rudolf, Post Formal Education in the Federal Republic of Germany : An Estimate of the Volume and Costs, O.E.C.D. mimeo, 1974, p.17.
3) Ibid, p.25.
4) H. Rudolf, op.cit., p.17.
5) S. Mukherjee, Making Labour Markets Work : A Comparison of the U.K. and Swedish Systems, London: Political and Economic Planning, 1972, p.11.
6) Ibid, p.101.

7. Paid Educational Leave

There are a number of situations where workers are given leave from their employment in order to undertake general education or training, and in many cases continue to receive full wages or salaries during this time. In most countries apprentices are given time off work for study at institutions such as vocational training centres, or technical colleges. There is also a long tradition of in-service training in the professions, for example the legal profession, and in recent years the practice of giving time off work for education or training, at full pay, has been extended to other groups of workers. For example, in the U.K. in 1970, 705,000 workers were released by their employers during working hours to attend part-time day courses at public further education establishments, and others were released to attend part-time courses at private colleges. The majority of such students were given paid leave for study.

However there are very few countries where workers have an automatic entitlement to paid leave for study. In most cases, time off work is granted at the discretion of the employers, and while entitlement may be written into an apprenticeship agreement, or may be the subject of collective agreements between employers and trade unions, there is very rarely universal entitlement to paid leave, or legislation giving workers the right to study leave. The question of paid educational leave has recently been considered by the International Labour Conference at its sessions in 1973 and 1974, and a draft Convention and draft Recommendation have been prepared for discussion, which regard paid educational leave as a "new labour right meeting the real needs of the individual in a modern society", and would require member countries to instigate policies to promote the granting of paid educational leave to all workers, for the purpose of a) training at any level; b) general social or civic education; c) trade union education. Paid educational leave would be available to all workers without discrimination, and "public authorities, employers, collectively or individually, workers' organisations, and educational or training institutions or bodies may be expected to contribute to the financing of paid educational leave according to their respective responsibilities" (1).

For the moment, however, very few countries have come near to providing all workers with the right to paid leave for education or training, rather than giving it to certain groups of workers as a right or privilege. One exception is France, where the Act of 16th July 1971 states that "lifelong vocational training is a national obligation .... Continuing vocational training is an integral part of lifelong education.

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1) International Labour Conference, 59th Session 1974, Paid Educational Leave, Report IV(2), Geneva: I.L.O. 1974.

Its purpose is to enable workers to adapt to change and to promote their social advancement and their participation in cultural, economic and social development" (1). The Act establishes, for the first time, the principle of paid educational leave as a right for all workers. This is financed by means of the vocational training tax which in 1972 was set at 0.8% of a firm's payroll, but will rise to 2% by 1976. All employers must either prove that they are devoting this proportion of payroll to education and training, or else pay the necessary sum to the Treasury as a tax (2).

The right to paid leave for all workers who have completed at least 10 years' service in the same employment exists in Australia. This "long service leave" is available for any purpose, at the rate of 3 months for every 10 years of continuous service. Thus a worker who has worked for one employer for more than ten years is entitled to take three months' paid leave, which may be used for education or any other purpose, or he may postpone this leave until he has a greater entitlement: in many cases workers choose to postpone their leave until retirement, thus enabling them to early retirement, or to receive payment in lieu of long service leave (3).

Several other countries have special provision for certain specific groups of workers who are entitled to paid leave for education or training. The I.L.O. has reviewed provisions in various countries and quotes a number of examples (4). The most common group of workers who have the right to paid leave are teachers, civil servants and medical personnel. For example, in Argentina teachers are entitled to one year's paid leave for each ten years' service. In the U.S.A. the Government Employees' Training Act gives civil servants the right to receive payment while they are undergoing training. In the U.K. all doctors and nurses taking refresher courses receive full pay, and in the case of midwives, attendance at periodic refresher courses is compulsory. In 1970-71 over 50% of all doctors in England and Wales and 28% of all nurses received paid in-service training during the year (5).

Most East European countries have some legislative provision for paid educational leave for specific workers. In Poland, further training is compulsory for workers employed in sectors of the economy "where rapid technological change makes it particularly important for them to acquire a wider range of

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1) Summary of the Act given in B.A.C.I.E., Vocational Training in the E.E.C., op.cit, p.100.
2) L. Ter-Davtian, "The Link between Education and Employment: via Continuing Vocational Education". op.cit., p.4.
3) Provision for paid leave for Civil Servants and Commonwealth Employees is contained in the Public Service Act and the Commonwealth Employees' Furlough Act, both amended in 1973. Similar provisions are available for employees in the private sector.
4) International Labour Conference, 58th Session Report VI(1), Paid Educational Leave, Geneva: I.L.O. 1973.
5) M. Woodhall, Adult Education and Training in the U.K., op.cit.

skills and knowledge", and in Russia managerial, technical, scientific and medical personnel are all entitled to paid leave for training (1).

In many countries workers are entitled to unpaid educational leave for specific purposes, such as trade union courses, and often some financial compensation is provided by employers or trade unions. Workers in many countries enjoy the right to paid leave as the result of collective agreements. For example, in France a national inter-occupational agreement in 1970 between the National Council of French Employers, the General Confederation of Small and Medium-sized Undertakings, and the Major Workers' organisations, provides the right to paid leave for 10 million workers, and in Germany 2.6 million workers enjoy the right to paid or unpaid leave for educational purposes, as a result of trade union bargaining.

Apart from such cases however, paid or unpaid leave is provided at the discretion of the employer. In Britain the idea of compulsory day release for all workers under 18 has been canvassed since 1944, when the Education Act mentioned part-time education for all young people under 18 as an objective, but the date when this would become obligatory was left to the discretion of the Minister of Education, and it has never been implemented. In fact, the proportion of young workers released from employment for part-time education has risen much less fast in recent years than was hoped. Between 1961 and 1970, the absolute number of young workers receiving part-time education remained more or less constant, although a Ministry of Education Committee in 1964 recommended a doubling of numbers by 1970 (2). It is true that there was an increase in the proportion of all insured workers under 18 receiving part-time education; this rose from 19% in 1961 to 24% in England and Wales in 1970, and there was a small increase too among older workers, but even so the goal of universal part-time education for workers between 16 and 18 seems as remote as it was in 1918, when it was first proposed.

Thus, while it is true that the idea of paid leave for education and training has been gaining ground in recent years, and many more workers have had the opportunity to participate in part-time study, while continuing to receive their normal wages or salaries, very few countries have recognised study leave as a right, rather than a privilege, for certain groups of workers. In this respect France is so far probably unique, and there is not yet sufficient experience to judge how far this principle will be put into practice, even there.

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1) I.L.O. Paid Educational Leave Report V(1), 1973, op.cit., p.10-11.

2) J. Pratt, "What about the Workers?", New Society, 26th March 1970.

8. The Distribution of Costs and Benefits of Higher Education

All governments subsidise both the direct and indirect costs of higher education, yet even in countries with the most generous systems of institutional grants and student aid, the individual student or his family also share in its financing, through payment of fees or sacrifice of earnings. The economic justification for public subsidies of education is that society as a whole enjoys the spill-over benefits of education, as well as the direct benefits of higher productivity and a more mobile and adaptable labour force, and the justification for private finance is that those who receive higher education will enjoy greater earning power, security of employment and access to more enjoyable jobs. Yet despite all the work on the social and private returns to education, economic analysis in general, and human capital theory in particular, offers few guidelines as to the most equitable distribution of costs and benefits between individuals and governments. The Carnegie Commission concluded that "no precise - or even imprecise - methods exist to assess the individual and societal benefits as against the private and the public costs. It is our judgement, however, that the proportion of total economic costs now borne privately (about two-thirds) as against the proportion ... now borne publicly (about one-third) is generally reasonable .... We note that this two-thirds to one-third distribution of total economic costs has been a relatively stable relationship for a substantial period of time" (1). However this distribution in the U.S.A. is the result of many historical factors and trends, and other distributions would be found in other countries.

The one common trend is for governments to subsidise higher education so that in all countries the private returns to education, as measured by post-tax earnings differentials in relation to the private burden of costs, are substantially greater than social returns. However, there is no general agreement about the correct balance between the individual and social costs, nor about the desirable distribution between different groups in society. Yet the fact that the private returns to education are so high means that the question of unequal distribution of costs and benefits is far more important in the case of education than many other items of government expenditure. Since education helps to determine income, unequal access to education now will perpetuate income inequalities in the future, and inequitable distribution of financial burdens between taxpayers and beneficiaries has implications for the future distribution of income. This has recently attracted more attention than ever before. Such questions as the choice between grants and loans for students have been discussed in the context of the distribution of costs between the taxpayer and the individual student, but the question of the redistributive effects of educational expenditure in general has only recently been analysed in detail.

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1) Carnegie Commission, op.cit., p.3.

In America there have been a number of recent attempts to calculate the relative distributions of financial benefits and burdens of higher education in various states, and in the country as a whole, between different income groups. The results are controversial, but on the whole suggest that the sources of revenue for higher education are generally regressive, that the chief beneficiaries of public subsidies are students from upper income families, and therefore that the effect of government expenditure on higher education is to transfer income from the poor to the rich. The first such study was by Hansen and Weisbrod for the state of California (1). They show that upper-income students not only have a higher probability of entering higher education in the state, but are more heavily concentrated in the University of California which has a high public subsidy, than in the less subsidised state or community colleges. For example, in the University of California, where the annual state subsidy per student in 1965 was $1,700, the proportion of students from families with an income above $15,000 was 46 per cent compared with only 15 per cent with family incomes below $6,000; but in two-year community colleges where the annual subsidy was only $700 per student, the proportion from the lowest income and the highest income categories was about equal at 25 per cent.

When these subsidies are compared with the financial benefits of each type of education, and with the pattern of local and state taxation in California, Hansen and Weisbrod concluded that the method of financing higher education was regressive, and involved a transfer of income to upper-income families. This conclusion has been challenged by Pechman, who argues that alternative methods of calculating the distribution of tax burdens and subsidies by income group would yield the opposite result, and suggest that richer tax-payers are subsidising middle and lower-income families (2). This controversy illustrates the fact that different conclusions about the equity of methods of finance can be drawn from the same data, by adopting different measures of distribution. For example, Hansen and Weisbrod calculate benefits and taxes paid by average families with and without children enrolled in state higher education, whereas Pechman attempts to distribute costs and benefits by income class, and adopts different assumptions about the incidence of taxation.

There is no single way of analysing the data which will give unambiguous conclusions, since taxes are not earmarked for particular purposes, and many different income transfers take place: between old and young, rich and poor, childless families and those with several children, families who benefit from public education facilities and those whose children are enrolled in private institutions or not enrolled at all. Therefore different conclusions can be reached on the basis of data for one state, and other similar studies for other states have also produced different results. Estimates by Hansen for Wisconsin, Windham for Florida, and Hight and Pollock for Hawaii show that the income transfer effects of state subsidies differ substantially between states, so that it would be dangerous to generalise about the redistributive effects of public subsidies on the basis of evidence from single states, or even countries.

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(1) W. Lee Hansen and B.A. Weisbrod, *Benefits, Costs and Finance of Public Higher Education*, Chicago: Markham Publishing Co., 1969.

(2) J.A. Pechman, "The Distributional Effects of Public Higher Education in California", *Journal of Human Resources*, Summer 1970. See also a brief note by R.W. Hartman: "A Comment on the Peckman-Hansen-Weisbrod Controversy", *ibid*, Fall 1970.

There have been very few attempts to calculate the effects of government subsidies on the distribution of income for whole countries, but estimates have been made for the U.S., Canada and France. The Carnegie Commission concluded that for the U.S. as a whole, the system of financing higher education means that low-income families whose children attend college do receive more benefit from public subsidies than their share of the taxes which finance higher education, whereas the reverse is true for the highest income category. On the other hand, if allowance is made for those of college age who do not attend college, there does appear to be a transfer of income from poor to rich. Table 6 shows the Carnegie estimates of the distribution of tax burdens and institutional subsidies for higher education in the U.S.A. in 1971, together with the distribution by family income of the college-age population. This suggests that families with incomes below $10,000 pay a smaller share of the taxes that go to finance higher education than their share of subsidies, whereas families with incomes above $15,000 pay over 40 per cent of the taxes, and receive only 28 per cent of the subsidies. On the other hand, families in the lowest income category account for 8 per cent of all families with college-age children, but receive less than 5 per cent of total subsidies, and the richest families, who account for 16 per cent of the population receive 28 per cent of the subsidies. This is because the proportion of the 18 - 24 age group enrolled in higher education is only 23 per cent for the lowest income group, and 66 per cent for the top income category.

If indirect subsidies through student aid are also taken into account, it becomes even more obvious that the chief beneficiaries of public expenditure on higher education are upper-income families. Despite the fact that federal loan programmes are intended to give equal opportunities to poor students, and that the National Defense programme is specifically designed to attract borrowers from low income families, by providing interest subsidies, Hartman has estimated that only about 30 per cent of the subsidies go to students from families with incomes below $6,000 and that more than half of the benefits of the loan programme accrue to students from families with over $7,500 income (1). Thus he concludes that the loan

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1) R.W. Hartman, Credit for College, p.58.

Table 6

Distribution of Families of College-Age Population (18 - 24) in the U.S.A. and tax burdens and institutional subsidies for higher education, 1971

per cent

Family Income Group	Families of College-age Population (18 - 24)	College Attendance as % of 18-24 age group	Tax Burden	Institutional subsidies
Under $3,000	8.4	23.0	2.1	4.8
$3,000 - 4,999	13.7	26.7	5.6	8.7
$5,000 - 7,499	20.2	28.3	10.4	13.3
$7,500 - 9,999	18.5	38.0	14.0	17.7
$10,000 - 14,999	22.8	40.6	26.5	27.5
$15,000 and over	16.4	66.1	41.5	28.0
Total	100.0		100.0	100.0

Source: Carnegie Commission, *op. cit.*, p. 44-5.

programmes are not efficient in distributing finance to promote equality of opportunity, and that if the main purpose of student aid programmes such as the National Defense Student Loan programme is to equalise opportunities, they need to concentrate funds much more heavily on low-income students.

Attempts to estimate the redistributive effects of public expenditure on higher education in other countries produce conflicting results. Calculations for Canada suggest that the redistributive effects of public subsidies are negligible (1). However, a study of the transfer effects of public expenditure on higher education in France also concluded that the chief beneficiaries of subsidies are families from higher socio-economic categories (2).

In general, the system of financing higher education in most O.E.C.D. countries appears regressive, even though there are very few detailed studies of the redistribution effects of public spending. Since every country relies heavily on institutional grants, which distribute benefits equally to all students, regardless of income, and since high-income students are far more heavily represented in higher education than those from poorer families, all existing systems of finance give proportionally more to the richest families. Many people regard this as undesirable on equity grounds, and it also involves an inefficient use of government funds if a major objective of subsidies is to promote equality of opportunity. For many of these families would be able and willing to pay more towards the cost of higher education, which would leave a greater share of government funds for low-income families. In America, Poltsman has suggested that the present policy of giving government grants to institutions, to subsidise the costs of tuition, means that about two-thirds of public subsidies replace private expenditure that would have taken place in the absence of subsidies, so that only one-third or less of all subsidies actually help in promoting greater equality of opportunity (3). While the assumptions and methods of such calculations may be open to question, the general conclusion, that subsidies which reduce or abolish private contributions through fees, do less to equalise access by different income groups than equivalent money subsidies given directly to consumers (i.e. students), has important implications for policies of financing higher education.

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1) R.W. Judy, *On the Income Redistributive Effects of Public Aid to Higher Education in Canada*, Institute for Quantitative Analysis of Social and Economic Policy, University of Toronto, 1969.

2) Y. Morriere and P. Petit, Les Effets Redistributifs de L' Enseignement Superieur, CEPREMAP, 1972.

3) S. Poltsman, "The Effect of Government Subsidies-in-kind on Private Expenditures : The Case of Higher Education", *Journal of Political Economy* Vol. 18, Jan. - Feb., 1973, pp. 1 - 27.

Many questions remain to be answered about the distribution of costs and benefits of higher education in different countries. It is a very new subject of enquiry, and methods of analysis need to be further developed, but already obvious imbalances and inequities have been revealed. It is clear that existing methods of finance favour the young, and those from higher income families, who are more likely to enrol in higher education, at the expense of older and poorer members of society who help to finance education through taxation, which is often regressive, but who derive little personal benefit from it. One school of thought would argue that such inequities should be corrected by making taxation in general more progressive, and that the redistributive effects of expenditure on a single government activity should not be viewed in isolation. However, the alternative view is that some attempt can be made to redress these imbalances by reforming methods of financing higher education.

9. Proposals to Redistribute the Costs and Benefits of Higher Education

The proposals that have been made to redress the inequities of existing financing arrangements usually emphasize the need to increase private contributions, so that those who can afford to pay more do so, and government subsidies can be redistributed in favour of lower income groups. This point of view is reinforced by the fact that higher education brings substantial private benefits. Thus, many of the proposals for reforming patterns of finance are justified by reference to the principle that "he who benefits should pay". Some of the proposals suggest simply that the proportion of university incomes derived from fees should be raised, and that existing student aid policies should be extended to ensure that higher fees did not discourage poor students. On the other hand, many proposals go further and advocate a more fundamental reform of financing systems.

A frequent proposal in the U.S.A. and Britain is that more student aid should be available in the form of loans; in America this would mean greater reliance on loans, which at present account for less than half of all student aid, but in Britain it would mean that loans would be substituted for grants, or a mixed system of loans and grants introduced, similar to that existing in Scandinavia. One argument for introducing loans for students in Britain is that government funds could be redistributed in favour of low-income students at the secondary level, thus preventing drop-out at the end of secondary school. This would help to equalise opportunities by reducing the cost of acquiring the necessary qualifications for entry to higher education. For example, Blaug argues that "a policy designed to equalise educational opportunity should start with maintenance grants in fifth and sixth forms and end with financial aid after entry into higher education ..... Unwilling to face up to the costs of true equality, we have instead created a system in which education between fifteen and eighteen is effectively distributed in accordance with the purchasing power of parents .... after which we award those who have survived the race with an average prize of £300 per year" (1). This reasoning is supported by calculations of the proportion of pupils' and students' earnings foregone which are covered by maintenance grants and parental tax relief. In the case of the secondary school pupil, tax relief to parents averages 30% of the earnings foregone by a 15 year old, leaving the family to bear the burden of £220 a year, but tax relief plus grant to the undergraduate covers 60% of earnings forgone, leaving £250 to be met by the family, and in the case of a post-graduate student, 80% of earnings foregone is met by the grand and tax relief, leaving only £175 to be borne by the student or his family (2). Blaug's solution would be to give grants to pupils in upper secondary education, and off-set the costs by introducing student loans or a "graduate tax". On the other hand, the National Union of Students, which is totally opposed to loans or a graduate tax, has recently proposed that all pupils and students over the age of 16, including secondary school pupils and those in full-time or part-time education, should receive a grant calculated according to their own, rather than their parents', means. This would more than double expenditure on student aid, and would still mean a transfer of income from poor to rich.

Other proposals would go much further, and suggest more fundamental innovations. Three new methods of financing higher education have recently been proposed, and in some cases these would be designed so that all post-secondary education, including part-time education and vocational training, as well as full-time higher education, would be financed under a single system.

A. "Two-Years-in-the-Bank"

One proposal, recently put forward by the Carnegie Commission in the U.S. is that every individual over the age of 18 should be entitled to two years' post-secondary education subsidised out of public funds, and that he or she should be free to take advantage of this at any time. In other words, everyone should have the right to draw credit from an "Educational Opportunity Bank" up to an agreed maximum (3). The Carnegie Commission envisaged that the basic "drawing right" should be set in terms of the tuition costs of two-year

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1) M. Blaug, An Introduction to the Economics of Education, London: Allen Lane the Penguin Press, 1970, p.295.
2) Department of Education and Science, Output Budgeting for the Department of Education and Science, London: H.M.S.O. 1970, p.28.
3) Carnegie Commission on Higher Education, Toward a Learning Society : Alternative Channels to Life, Work and Service, New York: McGraw Hill, 1973, Chapter 4.

community colleges. A similar proposal has been put forward by Allan Cartter in papers at recent conferences in the U.S. (1). Under his scheme the U.S. Federal Government would undertake to provide half the tuition costs of four years' post-secondary education for any individual, with an upper limit of $1,500. This is very similar to the idea of "two-years-in-the-bank", and the costs would be broadly similar to providing everyone with two years' education at a community college, where tuition costs averaged $877 in 1968. Cartter estimates that the annual cost of his proposal would be $2.5 billion, and that this could be off-set by savings in other current federal programmes; for example eliminating income tax deductions for educational expenses, the payment of dependants' allowances and social security payments for students over 18, and reductions in benefits under the G.I. Bill.

The advantage of such a scheme is that every individual would be assured of some post-secondary education, and he would be free to take advantage of this at any age, rather than be obliged to enter full-time higher education at 18. However, if everyone had a "drawing right" of $1,500 this would not enable him to meet the costs of any of the longer, more expensive courses at colleges or universities, or to pay his living expenses. In 1968, when average costs at two-year community colleges were $877, average costs at other institutions ranged from $1,467 at some public colleges to $9,964 at the most expensive private universities. The Carnegie Commission estimated that earnings foregone by full-time college students in 1970 averaged $3,400. Thus even with "two-years-in-the bank" everyone wishing to attend full-time higher education would still have to meet further tuition costs and bear the costs of foregone earnings. Considerable financial assistance for students, both to meet tuition costs and living expenses, would still be needed. Two major developments in student aid are therefore envisaged by the advocates of an educational credit scheme. The first is for a system of income-contingent loans to cover extra tuition costs. The second is for a special tax on earnings, to provide maintenance of income during periods of study.

B. Income Contingent Loans

The idea of income-contingent loans has been put forward by a number of American economists, starting with Friedman in 1955, Zacharias in 1967, and many others. Experimental schemes have been introduced, at Duke, Yale and Harvard Universities, but apart from these small-scale schemes, the idea of income-contingent loans remains a theoretical proposal, but one which has been elaborated in some detail. A recent study by D. Bruce Johnstone looks at ten alternative schemes (2). The basic idea is that students would be offered loans to cover tuition costs or living expenses, but instead of repaying the loan by a series of fixed annual instalments, as under current federal loan programmes, they would undertake to pay a specified

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1) Allan Cartter, "The Need for a New Approach to Financing Recurrent Education". Paper given to Princeton Conference on Post-Degree Continuing Education, May 1973, and a paper given to American Council on Education, January 1974.

2) D. Bruce Johnstone, New Patterns for College Lending: Income Contingent Loans, New York: Columbia University Press, 1972, p.32

proportion of their income each year, until the loan was repaid, or a maximum repayment period had been satisfied. The repayment rates vary according to the size of the loan and the length of repayment, but in most cases borrowers would pay between 1% and 5% of their gross income to repay their loan, and the maximum repayment period would be 30 years. Special provisions would be necessary for high and low earners, since those with very high incomes would repay their loans very quickly, while low earners might never repay the loan, even after 30 years. In most cases high earners could "opt out" after repaying their loan and a specified rate of interest, usually between 7 and 10%, while those with low earnings would be forgiven any debt remaining after 30 years.

The financial viability of income-contingent loans depends on a number of factors, including the repayment rate, the maximum repayment period, the upper limit on liability, the rate of interest, and, the most difficult factor to predict, the level and growth of earnings. Most of the proposals envisage that given the maximum level of debt, and the predicted rise in incomes in the U.S., an income-contingent loan scheme could become self-financing with graduates paying no more than 5 - 7% of their gross incomes as loan repayments. The Harvard scheme stipulates that no-one must pay more than 6% of his annual income. However, if students were expected to pay much higher tuition fees than are currently charged in the U.S. and if interest rates were to rise, then in the future graduates might have to pay a considerably higher proportion of their income to make a loan scheme self-financing.

For example, under the Carnegie Commission proposal, made in 1970, students would be permitted to borrow up to a maximum of $6,000 for a first degree, and $10,000 for a post-graduate degree. The repayment rate would be fixed at 0.75% of income for every $1,000 borrowed, which would mean that if a student borrowed the maximum amount, he would have to pay 4.5% of his income in the case of a bachelor's degree and 7.5% if he took a higher degree. However, if every student were provided with an "educational credit" of $1,500, and expected to pay all further costs of higher education himself, by means of an income-contingent loan, then if a student chose a university with high tuition costs, he might find himself with a total debt of $15,000 or higher, which would mean that he must pay over 10% of his income. Also, most of the loan proposals assume a repayment period of 30 years. If adults chose to undertake a loan they might have only 15 to 20 years of working life in which to repay the loan, so that once again the level of repayment would have to be higher.

In the U.K., where income-contingent loans, or a "graduate tax", have been proposed by Prest and others (1), calculations suggest that in some cases annual payments of 10 or even 20% of

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1) A.R. Prest, *Financing University Education*, Institute of Economic Affairs Occasional Paper No. 12, 1966.

their income would be necessary if graduates were expected to repay the full costs of their university course (1). The proposal is for a system under which graduates would pay a special tax designed to "enable the community to recover the value of the resources devoted to higher education from those who have themselves derived substantial benefit from it" (2). If the whole of the costs of higher education, together with the value of student maintenance grants were to be repaid in 20 years, then annual payments of over £100 would be needed, and those who had taken a 4-year degree or diploma course, for example in science or technology, would have to pay about £150 a year. If interest were charged at 4%, then annual payments would rise to £166 - £272, according to type of course, and if 8% interest were charged, then annual payments of £250 to £450 would be necessary, and those who took a post-graduate or a medical degree would have to pay £700 a year or more, even if only 4% interest were charged. These calculations show how sensitive the figures are to assumptions about interest rates. For example a graduate in arts or social science would repay the cost of his education in 20 years, if he paid £100 a year, and was charged no interest, but if interest were charged at 8%, then his payments would be £260 a year for 20 years.

These figures also illustrate how long it would take for a loan scheme to become self-financing. For example, if a loan scheme had been introduced in Britain in 1970 and graduates were expected to repay their tuition costs and maintenance grants at 4% interest, then the total revenue by 2000 would still cover only 60% of projected expenditure on universities, and if the loans were interest-free, then less than a quarter of university expenditure would be met by loan repayments 30 years after introduction of the scheme (3). Similar calculations made in Denmark in 1964 showed that if loans to students were provided at 3% interest, and expenditure on loans rose at the same rate as student numbers, then by 1980 loan repayments would cover 60% of expenditure on loans, but if the loans were interest-free then only 40% of the expenditure in 1980 would be covered by loan repayments, and if the real value of loans were allowed to rise, then only 22% of 1980 expenditure would be met by repayments (4). Clearly, if an interest subsidy is provided for graduates, then no loan scheme can ever become fully self-financing.

C. Income-Maintenance Schemes

Even if an "educational credit", and income-contingent loans were provided automatically for all students, regardless of age, this would still leave the problem of living expenses and foregone earnings, and if adults chose to delay their education for many years, their earnings foregone, and their financial commitments would be much higher than those of 18 - 20 year old students. Various proposals have been made for a system of

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1) H. Glennerster, S. Merrett and G. Wilson, "A Graduate Tax", *Higher Education Review* Vol.1, 1968, p.32.
2) *Idem*, p. 26.
3) *Idem*, p. 33.
4) M. Woodhall, *Student Loans : A Review of Experience in Scandinavia and Elsewhere*, London, G. Harrap, 1970, p.125.

income maintenance which would apply to adults wishing to take full-time education or training after joining the labour force, and be financed by special contributions or a tax on earnings during the remainder of their working life. Some of these proposals would cover tuition costs as well as living expenses; for example Tobin and Ross have advocated a "National Youth Endowment" for the U.S.A. which would give every 18 year old an "endowment" or drawing rights of $5,000 which could be used at any time in the next ten years (1). This is very similar to the "two-years-in-the-bank" proposal, and, like an income-contingent loan, would be financed by a tax of 1% of income for every $3,000 borrowed, but it would be confined to students under 28, so would not greatly increase the options available to older workers. A variant of this scheme would provide a "Human Investment Fund" for all workers, financed by a 6% tax on incomes from age 18 to 48, but the drawing rights, with a maximum value of $10,000, would remain valid throughout this period, and if the credit had not been used to finance education or training before the age of 48, the individual could then use it for any purpose (2).

Such proposals attempt to combine financial provision for tuition and living expenses in a single scheme; Cösta Rehn of O.E.C.D. would go further, and he advocates "one integrated system for financing all periods of non-work" including all post-secondary education and training and also leisure, in the form of both reductions in the working week, and early retirement. Every worker would contribute a proportion of his income, in return for drawing rights on a social insurance fund which would provide income maintenance for a wide range of purposes, including education, up to a maximum of three years' study, but also including extended vacations or early retirement. However, other proposals confine themselves to the question of finance to cover living expenses during study. Cartter proposes to supplement his idea of "two-years-in-the-bank" with an income maintenance scheme under which all workers would pay a tax of 4% of their earnings, or possibly share this burden with employers who would contribute half. In return a worker would receive 50% of his current salary for one month for every year's contribution. Before the age of 45 this could be used only to cover living expenses during a period of education or training, but after the age of 45 the options would be wider, and the money could be used for any purpose. Unemployed wives would be eligible to draw on their husband's account, and finally, after the age of 60, any accumulated credit would be converted into pension rights. Cartter believes that such a scheme could become self-financing, although in the early years the costs could be partially offset by savings in other federal schemes, such as payment of unemployment benefit. Unemployed workers would receive payment, but would lose their "education credit" after eight weeks of unemployment. He estimates that this and changes in the

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1) J. Tobin and L. Ross, 'Paying for the High Costs of Education : A National Youth Endowment", New Republic, Vol. 160, May 1969. Discussed in Carnegie Commission, Toward a Learning Society, op.cit.

2) This proposal, by S. Dresch, is also discussed in Carnegie Commission, op. cit.

payment of G.I. benefits would save $8 billion which could instead be channelled into the new scheme.

The common feature of all these schemes is that they would give workers automatic entitlement to income maintenance, during periods of study, in return for income-related payments during working life, in just the same way as workers in many **countries** now enjoy pensions or social security benefits financed out of specific contributions. The costs of tuition and earnings **foregone would be re-distributed over time**, and every individual could expect to benefit, rather than the present re-distribution of the costs of education between persons.

10. Conclusions

This review of methods of financing higher education in O.E.C.D. countries has shown that the implications of alternative methods of finance for equity and equality of opportunity are extremely complex. Despite the attempts of twenty years to achieve greater equality in education, financial barriers still exist, students are often discouraged from entering higher education by the high direct or indirect costs of study. Systems of subsidy and student aid, designed to overcome this problem, often succeed only in transferring income from the average taxpayer to those who will have higher than average earnings. Furthermore, inequalities in the formal education system are often reinforced by unequal opportunities for participation in adult education and training, and in different degrees of subsidy for different types of education.

There is evidence from many countries that those who are most likely to benefit from the expansion of opportunities are those who already have attained a higher than average level of formal education; men benefit more than women, and those with the lowest level of educational achievement are less likely to benefit from in-service training than those in skilled or professional occupations. For example, in France, in 1972, only 5% of unskilled and semi-skilled workers received training, compared with 32% of professional workers (1). In Britain in 1971, only 1% of workers in unskilled occupations received training, compared with 10% in skilled occupations and 30% in some professions (2). The same is true if we look at non-vocational education. In Britain those who left school at the minimum school-leaving age are least likely to attend evening classes later in life, and if they do, they will probably be charged fees.

In 1969 fees accounted for 15% of the total expenditure on non-vocational adult education by Local Education Authorities (3),

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1) Ter-Davtian, op. cit., p.14.
2) M. Woodhall, Adult Education and Training in the U.K., op. cit., Table 2.
3) Department of Education and Science, Adult Education : A Plan for Development (The Russell Report), London, H.M.S.O. 1973, p.248.

whereas only 8% of total university expenditure was derived from fees, and whereas the proportion of university income derived from fees has been static or falling in recent years, the level of fees in non-vocational courses has been rising.

Therefore, further progress towards equalising opportunities in education, and achieving greater equality of life chances will depend on changes and innovations in financial policy, as well as changes in the education system itself. The equity aspects of alternative financing methods have been emphasised increasingly in recent years. But because of differences in the historical, political and social factors that have determined the patterns of finance in different countries, there is no single method of financing that is appropriate for all O.E.C.D. countries, and a proposal that may appear radical in one country might seem to restrict, rather than enlarge, opportunities in another. For example, student loans are advocated in some countries, as a means of promoting greater equality, and in others are attacked on the grounds that they would reduce equality of opportunity. In the future even greater attention is likely to be devoted to the social effects of financial policies, and to the problems of devising new financial mechanisms which would encourage, rather than obstruct, alternative ways of combining work, study and leisure, so as to provide more freedom of choice for young and old, rich and poor.

A Comment on Woodhall

by

Gareth Williams

There are at root only two main categories of education. In some branches of education students are there because, in the last analysis society, through its laws, has decreed that they must be there. This is compulsory education. In other branches pupils and students attend school because for one reason or another they want to. This is for the most part post-compulsory education, though for some purposes it is appropriate to include also pre-compulsory education.

Miss Woodhall's paper is concerned with post-compulsory education. This is not surprising. The scope for improvements of equality through financial measures in compulsory education are not immediately obvious. If children are legally required to attend school the scope for financial manipulation of educational opportunities and achievements is, at first sight, limited. If it is believed that some individuals or groups are receiving fewer benefits than others from public education, the obvious policy instruments lie in the organisation of education rather than the way in which it is paid for.

However the fact that evidence is growing that the roots of educational inequality lie far back in compulsory education and even precede it, suggest that it may be instructive at least to pause for a moment to consider the root causes of inequality in education and whether changes are possible in the finance of compulsory education that would help to equalise the life chances of all children.

The second main feature of Miss Woodhall's paper is that it is concerned with the effect of the balance between public and private financing of education on the educational and subsequent life chances of individuals. She implies, though nowhere explicitly states, what many would hold to be the golden rule of financing public sector activities that "he who benefits should pay".

However, a consideration of the financial reasons for inequality in compulsory education suggests that the mechanisms by which public funds are provided to education can have a considerable effect on the distribution of benefits even though all the expenditure comes from society as a whole through public budgets. Woodhall's paper touches on one aspect of this theme in her discussion of subsidy of institutions versus subsidy of individuals. But the ramifications are surely wider than that. For example the fact that in Britain resources within universities are distributed largely in accordance with the wishes of the teachers whereas in the polytechnics the administration is more powerful may affect the allocation of resources within the two institutions.

Where primary and secondary education is the responsibility of local authorities there are often considerable inequalities in overall levels of provision between authorities. This is largely because some authorities are less prosperous than others but also because some give less priority to educational expenditure than they do to other collective activities such as police, health services, welfare services and so on. Again, within education different local authorities decide to allocate their resources differently, some make special efforts for mentally or physically handicapped children, others to avoiding racial or religious discrimination.

One of the problems about egalitarian educational policies touched upon by Miss Woodhall is that most people expect their education system to provide other benefits as well as, and indeed in many cases rather than, those of promoting equality of life chances or equality of educational attainment or even equality of educational opportunity. Individual freedom of choice, local initiatives as opposed to control from the centre, development of individual interests and personality, enhancing social effectiveness and economic productivity of individuals are some of them. One claim (not made by Miss Woodhall) that seems to me to be a myth is that participatory management of education (including parents, students, teachers) will necessarily lead to more equality.

Miss Woodhall has shown that there can remain little doubt that our present systems of financing higher education result in substantial transfers of command over resources from the children of the less well off to the children of the better off, from the potentially less well off to the potentially better off and at the present point in time from those who are older to those who are younger.

Her marshalling of evidence in a short paper is masterly and her conclusions are so tentative and reasonable that there is nothing substantial that can be disagreed with - certainly not by a commentator who accepts what I take to be her basic value position of a desire to establish a "fair" system of higher education provision that is in some sense efficient, in a society where freedom of individual choice is considered an important end in its own right.

Of course higher education could be made much more "equal" than it is if public sector resources were unlimited and if the authorities could force individuals to undertake higher education or recurrent education whether they wanted to or not. But resources are far from unlimited - in the next year or two they may be even more limited than they have been for some decades - and few public figures in OECD countries would accept compulsion (either inclusion or exclusion) as a legitimate policy instrument for the education of adults.

In the absence of any serious disagreement with Miss Woodhall, I should like to raise for discussion four questions that are brought to mind by her paper and which I at least have never heard adequately resolved.

First. How should the concept of earnings foregone be used by the planner or policy maker in policies of student subsidy particularly in adult education? Certainly students are foregoing either income or leisure while they are studying. However, the actual earnings foregone by any individual are by definition impossible to know. Any attempt to compensate students for earnings foregone must therefore be an approximation based on an estimate for the ability, sex, social and racial group to which the student is assumed to belong. But it is almost certain that the better off a student (or his family is) the greater is his income foregone (i.e. the more he would earn if he were earning rather than learning). But few would advocate an explicit policy of paying higher subsidies to better off students. Subsidies for student maintenance are therefore only remotely a recompense for actual earnings foregone. They are a bribe to encourage "deserving" people to undertake higher education who might not otherwise do so. Is it not liable to be misleading to consider such subsidies as having any more than a remote connection with earnings foregone. This would be the case especially for adults. Otherwise those with the best paid jobs might be able to claim the highest grants for recurrent education, in order to obtain presumably even better paid jobs.

Second. Miss Woodhall quotes several proposals for giving young people at the age of majority, various kinds of educational vouchers for subsequent purchase of periods of study at accredited educational institutions. Apart from the administrative problems this raises which she discusses, I have always wondered what happens to those who feel they can invest in themselves better in other ways, by becoming a professional footballer, or by setting up a business to persuade people to buy second-hand cars or indeed by buying a house rather than paying a rent to others? Even on narrow grounds why should paid leave of absence be for formal educational purposes only? Might not a trip round the world be equally beneficial? Are those who advocate vouchers really interested in promoting equality or in selling the service in which they have a vested interest?

Third. Miss Woodhall quotes Hartman's study of U.S. loan programmes, which suggests that these have made little contribution to the equalisation of enrolment rates. Was this evaluation not premature? Does it not take several years if not decades to be able to evaluate the social effects of a major social change of the nature?

Fourth. Is not the nature of higher education, indeed all post compulsory education inherently inegalitarian? It is impossible for higher education to be other than specialised and diversified. In a dynamic society, some specialist skills will always find themselves in (albeit temporary) short supply while others are in surplus, thus giving rise to what economists brought up in the Marshallion tradition called quasi-rents. Is not the best way to a more equal society through steeply progressive taxation while allowing people to make the best use of their own perceived abilities after they have had the opportunity of recognising these during an extended period of publicly provided compulsory education with a common core for all pupils? For some the opportunities will be provided by education; for others by business, for others by professional entertainment and sporting activities and for still others by dropping back to subsistence agriculture on a small communal landholding. While it is legitimate to identify inequalities in the existing system of education so that these can be rectified if society wishes to, this is not the same thing as showing how education can be a major instrument of egalitarian social policies. The parallel with earlier debates is interesting. It was possible to show how educational bottlenecks to economic growth can be removed, but not that education can be considered a major instrument for policies of economic growth. To press for the reduction of manifest educational inequalities and the use of education to help reduce manifest social inequalities is not the same thing as basing educational policy primarily or largely on egalitarian ideologies.

THE IMPACT OF EDUCATION ON SOCIAL MOBILITY

L'IMPACT DE L'EDUCATION SUR LA MOBILITE SOCIALE

Social Mobility and Equality

by

S. M. Miller

Social mobility is studied in three different ways: (a) Stratum mobility (wage differentials), where an occupational grouping's position is studied in comparison with other occupational groupings. "Position" is almost always defined in terms of income, although fringe benefits, autonomy, working conditions, work satisfaction and other attributes could make up "position".

The other two ways of studying mobility are in terms of individuals rather than occupations: (b) Intergenerational social mobility, where the occupations of respondents are compared to their fathers' occupations ("social origins") to see whether the son (infrequently the daughter) has moved up or down relative to the parent. Most sociological studies of social mobility are of this type. Since sociologists restrict their studies largely to occupational movement (usually measured in terms of a prestige scale, although that is beginning to change), rather than including income or power, the widely-used term "social mobility" is a misnomer; the more accurate term is intergenerational occupational mobility. (c) Intragenerational or career mobility, where the individual's work history is the centre of attention. Has the individual moved up or down occupationally over his or her working life? Sociologists have done little along these lines recently, while considerable work is now being done by economists in the U.S.A. and elsewhere, especially by those interested in the dual labour market thesis.

This paper deals with only the first two types of mobility, and more with intergenerational mobility than with stratum mobility. The working hypothesis of both discussions is that in general a decline in inequalities has not occurred despite economic growth and the expansion of education.

Stratum Mobility(1)

Sociologists concerned with social mobility have almost uniformly ignored stratum mobility, the wage differentials of the economist. The situation of the individual, relative to

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1) This section was prepared mainly by Martin Rein and is drawn from a paper by S.M. Miller and Martin Rein, The Possibilities of Income Redistribution , forthcoming.

his father (intergenerational mobility) or to himself (intragenerational mobility), has been the exclusive focus. This is somewhat surprising since so much of the stratification and mobility literature is concerned with the question of whether the manual-nonmanual divide is still significant. This concern arises largely from the belief that income differences between manual and nonmanual workers have drastically decreased. Nonetheless, a careful examination of the course of wages of occupational groupings has not had much attention in sociology, which has overfocused on prestige rather than income analysis. To right this imbalance, the discussion in this paper commences with strat[illegible] mobility, even though it is a topic well known to economists.

Stratum mobility or wage differentials are measured in three ways:

1. Relative changes in wage levels in different sectors of industry (as in Lindbeck) (1);
2. Relative changes in wage levels in various occupations (as in Lindbeck) (1);
3. Changes in the share of wage earnings going to each quartile or decile of wage earners.

Obviously, results of studies may differ depending on which comparison is made. In this section, wage differentials are compared in only the last two ways (2) and mainly for the U.S.A. and the United Kingdom.

The general finding, with at least one important exception, is of no trend towards a reduction in inequalities.

Aggregate data from the Current Population Survey (CPS) support the view that, since 1950, inequalities in earnings in the United States have widened. In 1958, the bottom decile had 14 per cent of mean earnings; by 1971, its relative position declined to 8.6 per cent. During the same period, the top decile improved its position from 197 per cent of the mean 263 per cent. (But these figures can be misleading because they fail to take account of the number of hours worked).

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1) See Lindbeck, "Inequality and Redistribution Policy Issues : Principles and the Swedish Experience", in Volume II of this publication.

2) Most of the comparisons are of pre-tax earnings. Since relative tax burdens over long time periods are unlikely to be constant, money earnings may be somewhat misleading in terms of disposable income. Another difficulty is that data are usually cross-sectional so that we are not following a cohort of workers in given occupations over time, i.e., lifetime earnings are not being studied.

When the position of male, year-round, full-time workers is taken into account, no trend toward greater equality is evident. Disaggregated CPS data are available only since 1967. They show that both the top and bottom decile improved their position relative to the mean, with the top improving their earnings at a somewhat higher rate. Blacks at the bottom did somewhat better than whites, while whites at the top did better than blacks. Thus, rather than claiming inequalities have increased, as Henle, Brittain and Schultz have concluded, the more cautious statement of "no drift toward equality" may be more valid.

This conclusion departs from the accepted view, as represented in Lydall's study of The Structure of Earnings, which showed a steady movement toward greater equality for males in three periods, 1939, 1949 and 1959. Updating Lydall's study for the most recent census (1969) and comparing the position of year-round and full-time workers, we find a remarkable similarity in the distribution of male earnings between 1939 and 1969, the only year where data permits a comparison of this group. When data for a similar group of workers are examined over a 40-year period, the most striking conclusion appears to be the overall stability of earning differentials.

Studies in Britain reach a somewhat similar conclusion for a much longer period of 80 years between 1886 and 1966. Thatcher observes that "in a period when the level of earnings of adult male manual workers increased by a factor of nearly 16, it appears that their dispersion (measured in percentage terms) changed very little. This appears to conflict with the widely-held view that there has been a narrowing of differentials between skilled and unskilled workers."(1) Further evidence about the stability in the distribution of overall earnings has been put together by Routh (2). Comparing the dispersion of earnings in the years 1913-14 and 1960 for skilled, semi-skilled and unskilled manual workers, little change appears to have occurred in the position of these groups relative to the average for all occupational groups. Of course, the picture is not completely static-professional men experienced a marked deterioration in their relative positions. Routh concluded that while the most striking finding is one of overall stability, dispersion was modestly reduced for men and widened for women.

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1) A.R. Thatcher, "The distribution of earnings of employees in Great Britain", in Journal of the Royal Statistical Society, 1968.

2) G. Routh, Occupation and Pay in Great Britain 1900-1960, Cambridge University Press, 1965.

These studies in the United States and Britain seem to suggest that although fluctuations in earnings of deciles and occupational groups relative to the mean or to the average of groups can be detected, when comparable groups are compared and a long enough time period is used, differentials appear surprisingly stable.

The Economic Commission for Europe report (1) notes that the long-term decline in the ratio of the earnings of skilled and unskilled workers from the pre-war to the post-war period seems to have been reversed in more recent years (2). It also observed the continued dynamics of wage changes, reporting that "up to the middle of the 1950's... the structure remained stable for manual workers and clerks, but the range widened for managerial and professional staff in France and Sweden...."

The classic differences in earnings between manual and nonmanual workers, white- and blue-collar workers, are considerably less than between those who work full and part time in the U.S.A. (See Lindbeck, on Holmberg's data for Sweden, which shows that "about half of the differences in wage income can be 'explained' by differences in working time...") Hence, who pays the price for economic fluctuations and irregular employment is perhaps a more critical issue than wage differentials among occupational categories.

Of perhaps equal importance is the finding that variations in earnings within a major occupational category in the U.S.A. are greater than those between occupational categories. Thurow makes the point dramatically--6 per cent of male physicians and surgeons who worked full-time earned less than $10,000 while 22 percent of male non-farm labourers earned more than $10,000. He asks, "How can common labourers earn more than M.D.s?" Jencks, with equal dramatic flavour, argues in his book Inequality that if the average earnings of all occupations in the United States were equalized, earnings inequality would be reduced by only 19 percent, since variations among the 10 occupational categories explain only 19 percent of the earning variances of men. Earnings inequality would be reduced by as much as 40 percent if the dispersion of earnings within an occupational category were narrowed so that men earned at the average within the occupation. Overall inter-occupational trends in wage differentials probably understate the extent of inequality.

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1) Incomes in Post-War Europe: A Study of Policies, Growth and Distribution, Economic Survey of Europe in 1965: Part 2, Geneva, 1967. Chapter 5, p.27.

2) Although not in Sweden. See Lindbeck's report in Volume II of this publication.

Intergenerational Social Mobility

A. Why Social Mobility Studies?

Social mobility affects who gets the better and worse jobs but does not determine the spread of income between jobs. One could pursue, I suppose, an intricate economic and social analysis to show that a particular rate of intergenerational occupational mobility (i.e., changes in the social origins of those in various occupations) would result in declining income differences between positions. But it is a hard case to make. At the level of both logic and practice, the very fact of social mobility clearly does not automatically result in the reduction of income differences. This would be true even if rising levels of education reduced income differences.

Why, then, bother with worrying about social mobility rates? Strive to reduce income differences, for that is the main goal, and forget about who is in what position. (A prominent sociologist of equality has raised this point with me in a personal communication.)

But this reduces the issue of equality to the income or resource dimension only. It ignores issues of power, culture, prestige, work satisfaction, working conditions, all of which are associated with different kinds of jobs.

Even if income differences were very much narrowed, the kind of activities that people are engaged in, the tasks that they do on their jobs, are still important. They are important in terms of the enjoyment, status and self-evaluation which they gain from different kinds of jobs. The very fact of income redistribution does not necessarily reassign tasks or obligations in a more egalitarian manner (1). If the concern is with trying to redistribute tasks so that more people have more enjoyment in what they do and so some people do not have a concentration of all good things while others have a concentration of all bad things connected with work, one has to be concerned with task redistribution. This is what social mobility is about--that people can change their jobs from those of their parents and throughout their lifetimes.

A variety of different kinds of patterns may be involved in social mobility. One variant is a largely horizontal movement from one kind of job to another. Others may be new combinations of old tasks and new forms of tasks which permit a great deal of variety. In some cases, the mobility is vertical (both down and up) and within a lifetime so that an individual does a lot of unattractive work in youth and perhaps also in his old age (probably part time) and in between has a variety of different kinds of jobs, perhaps at a much narrower band of variations in prestige and satisfaction.

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1) I have tried to outline the differences between resource or economic equality and task equality in S.M. Miller, "Types of Equality: Sorting, Rewarding, Performing" presented at the Eighth World Congress of Sociology, Toronto, August 1974.

The general point is that what one does would still be important, even if income differences were very narrow. Personal mobility, then, is an instrument in trying to provide, on the one hand, variety in one's work life, and on the other hand, an opportunity to do some of the interesting things over one's lifetime. The consequence of this orientation would be that social mobility studies would not be narrowly oriented toward occupational prestige but about the actual tasks performed and the opportunity of people to engage in a variety of tasks in which they are interested.

Obviously, some would not be interested in great variety but would prefer routine and continuity. The idea would not be to penalize them but to provide possibilities for the probably larger number of individuals who would seek to have greater variety in their activities over their lifetime. At the same time, redistribution of some of the dirty work in society would be necessary so that all could bear the burden and share the benefits over the long run. Today the effort is to concentrate the dirty work upon a limited number of sub-proletariats. The emerging notion is that we would all have to bear some of these responsibilities.

It is not necessary to accept this perspective to believe that social mobility would have a continuing role in a society which has narrowed income differentiation. For social mobility concerns not just income but the whole work world. A statement about a change of income accorded to a particular job does not resolve all the issues connected with the nature of work in which individuals are involved. As many have asserted, education is a value in itself; it is a consumption good. Similarly with social mobility: while it may have important consequences in terms of income and prestige, it is also to some extent a value, a desirable objective of its own, and it accords individuals an opportunity to achieve variety and a chance at interesting jobs which they would not have if they were thwarted or limited in their possibilities of changing occupations over time.

B. The Course of Social Mobility Studies

In the 1930's and 1940's, studies of social mobility were conducted in several countries, usually on a local basis or of a special group like entrepreneurs. Sometimes, as in the case of the United States, data collected for other purposes were utilized to analyze national trends in social mobility. These studies were marred by the smallness of the samples and by the inadequacy of the methodologies employed.

A sharp turn occurred in social mobility studies when David Glass organised a team of sociologists at the London School of Economics to analyse national trends in England and Wales. The study was more sophisticated in both its collection and analysis procedures. Shortly after the study began in 1949, the International Sociological Association was formed, and a Research Committee on Social Stratification and Social Mobility was organized as one activity of the Association. This committee, led by Theodore Geiger of the University of Aarhus in Denmark and Glass, formulated policies promoting studies which would parallel the U.K. study. The result was not only a more sophisticated approach to the national study of social mobility but greater comparability among national investigations.

Natalie Rogoff (now Ramsøy) and Seymour Martin Lipset (then Lipset and Hans Zetterberg) interpreted these national studies in a provocative way (1). They concluded that the United States did not have a distinctly higher rate of mobility than other countries and that all industrial nations had similar rates of intergenerational occupational mobility. The Research Committee on Social Stratification and Social Mobility of the I.S.A. asked me to do an independent analysis of social mobility studies (2). Among its conclusions, this trend report showed that considerable variations among nations occurred both in downward mobility and in movement between the manual strata and elite positions.

The present paper is an effort to look at the national studies that have occurred since 1960 and to attempt to see what trends in social mobility have taken place within nations, unlike the two earlier interpretations (Lipset et al. and Miller) which compared nations with each other.

Since 1960 a number of national surveys of intergenerational occupational mobility have been undertaken. Not only are new data available, but a new methodological era has dawned in social mobility interpretations. The Blau-Duncan study which appeared in 1967, has had an enormous impact (3). It not only promoted social mobility studies by bringing attention to the field once again and encouraging sociologists in many countries to pursue such work, but it introduced a methodology of path analysis which has had widespread influence. While the Glass studies and those initiated under the auspices of the International Sociological Association emphasised a common approach in the

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1) Seymour Martin Lipset and Reinhard Bendix, Social Mobility in Industrial Society, Berkeley: University of California Press, 1959.
2) S.M. Miller, "Comparative Social Mobility", Current Sociology, IX, 1, 1960, pp. 1-89.
3) Peter Blau and Otis Dudley Duncan, The American Occupational Structure, New York: John Wiley and Sons, 1967.

collection of data, the Blau-Duncan studies resulted in a common approach to the *analysis* of data. Path analysis has been used to assess the importance of various attributes of individuals in affecting the course of mobility. It moved the discussion of mobility away from the consequences of mobility for political or social attitudes and behaviour to the "causes" of mobility. I shall comment later on the difficulties of path analysis in mobility studies, but at this point I just want to credit path analysis for stimulating fresh work and approaches.

This paper does not deal with the results of path analyses, concentrating on a much simpler mode of analysis and question: what changes have occurred in how manual sons compare with nonmanual sons in obtaining nonmanual and elite positions within a nation?

C. *Modes of Comparison*

Social mobility studies are a mine-field of methodological and conceptual booby-traps, well charted by Duncan (1). Comparisons between nations and within a nation at different times require an act of courage or foolhardiness. Rather than introduce every other sentence with a warning about its flimsy basis, I make a blanket declaration now that grave issues and uncertainties of comparability exist and that the comparisons offered in this paper are at their very best suggestive of a possible ordering of difference, certainly not to be taken as quantitatively precise.

The basic social mobility table is of fathers' occupations cross-tabulated by sons' occupations, as below:

Basic Mobility Matrix

Fathers' Occupational Level	Sons' Occupational Level							Total
	1	2	3	4	5	6	7	
1.								
2.								
3.								
4.								
5.								
6.								
7.								
Total								N

This matrix permits several kinds of analyses. Moving across the front row, we have the *outflow* from the point of origination (fathers' occupations): of sons born to fathers in a given occupational level, what is the distribution of occupational levels among their sons? Moving down the column raises a different question: of current members of a given occupational level, how many came from one or another occupational level, i.e., what was their father's occupational level? This is an *inflow* analysis, as in Lindbeck's review of the

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1) Otis Dudley Duncan, "Methodological Issues in the Analysis of Social Mobility", in Neil Smelser and Seymour Martin Lipset, eds., *Social Structure and Mobility in Economic Development*, Chicago; Aldine, 1966.

Swedish Low-Income Study of mobility. Inflow and outflow analyses are very different. Because of differences in the totals (marginals) of rows and columns, a low outflow from a large occupational level can constitute a high percentage of all current occupants (inflow) of a small occupational level.

This paper is about *outflow mobility* - what is the occupational fate of individuals born to fathers in various occupational levels? It does not address the question of the occupational origins (father's occupation) of persons currently in an occupation.

One difficulty with many comparisons is that they have been made globally and are unconcerned with the changing fate of various occupational categories relative to each other. Thus, if the number of high-status jobs increases, then intergenerational mobility is also thought to have increased. (This is similar to the thinking that led to the misleading belief that if the economic pie (gross national product) were increasing, then everybody gained relatively and inequalities were reduced.) As Perucci has stated:

> It is generally assumed that both economic and demographic changes have made it necessary to recruit sons of lower-class origins into high-status occupations. *The important fact, however, is the relative position of the lower-class sons as compared to the upper-class sons*. From one viewpoint, a stratification system at any particular point in time may be considered as a rank order of statuses. Hence, if the economy changes so that everyone moves up we have the impression of increased mobility, while everyone still remains in the same rank order (1). (emphasis added)

The question of inequality is at the forefront of this paper's analysis of intergenerational occupational outflow data. Have sons of manual fathers improved their chances of obtaining nonmanual and elite positions relative to the chances of nonmanual sons to move or to stay in these positions? I employ a sample index of inequality to measure changes in relative advantage: (2)

$$\frac{\text{nonmanual to nonmanual}}{\text{manual to nonmanual}}$$

It is important to realise, as Robert Hauser *et al.* (3) have pointed out: "There is no index or rate of mobility which ... will serve all of our purposes in the interpretation

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1) Robert Perucci, "The Significance of Intraoccupational Mobility: Some methodological and theoretical notes, together with a case study of engineers," *American Sociological Review*, 26 December 1961.
2) Miller, *op. cit.*, p.36.
3) Robert M. Hauser, John N. Koffel, Harry P. Travis and Peter J. Dickinson, *Structural Changes in Occupational Mobility: Evidence and Hypotheses for the United States*, Center for Demography and Ecology, University of Wisconsin, Working Paper 74-6, April 1974.

and comparison of mobility data". Since with mobility, "what goes up does not necessarily come down", it is equally important to recognise, as did Duncan, that "... invariance with respect to some aspects of the mobility process is incompatible with variations in other aspects" (1).

D. What is Good?

American and European perspectives differ on how to evaluate mobility trends as positive or negative. Much of the way we look at current social mobility trends depends upon the way we regard the remote and recent past. A new nation with an expanding frontier, waves of immigrants, and rapid industrialisation, produced great opportunities to move beyond one's father. On this premise, many draw the conclusion that mobility rates are currently declining and would continue to decline, that the U.S. is becoming a more socially rigid nation. Research and analysis of social mobility in the United States deal with this belief. Blau and Duncan seek to confront it directly in concluding that American society has not hardened socially (2). I had some difficulty at a conference convincing a Duncan devotee that when he said the data showed no change in American mobility patterns in recent decades, his statement confirmed rather than disputed my contention that manual sons had not improved their chances for nonmanual status relative to those of nonmanual sons. No change means no improvement; no change in rigidity means no less rigidity.

The European perspective is different. It sees the recent past as one where countries have made sizable investments in the expansion of education; economic growth has been deliberately advanced; and programmes to aid low-income and low-educated populations have received considerable funds. The expectation, then, is that mobility of manual sons should have increased. The absence of change does not lead to satisfaction that the society has not hardened over time, but to disappointment that class barriers have melted so little despite activities which presumably should have had that result.

For the Americans, then, the question has been whether conditions of mobility have worsened. For the Europeans, the question is whether conditions of mobility have really improved. The answer to both questions frequently is that they have not changed much. How one interprets that conclusion depends on the expectations we bring to it. If we wish to refute those with simple visions of capitalist societies getting tighter and more rigid, then we can be content with little or no change. If we have a reform position and regard an increase in social mobility as an operating objective of social and economic policy, then we may be disappointed that so little improvement has occurred.

It seems to me that Blau-Duncan and their followers are oriented to the wrong reference point. Today the issue is whether and how the expansion of education, the purported

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1) Duncan, op. cit., pp.76-7.
2) Their perspective is as ideological as those they oppose.

reduction in poverty, prolonged economic growth and the welfare state have led to sizable increases in mobility in many countries, as they were expected to do. The hypothesis that animated this paper is that they have not - that manual sons have not improved their chances relative to those of non-manual sons. It received only limited support in the following analyses.

E. The Character of Trend Data

Studies of social mobility which provide information on trends over time are of two types. One type is a replication study in which data are collected for a later period and compared with the results of an earlier study in the same nation or locality. A good replication study is rare. One reason is that many later studies are not deliberately aimed at serving as replications and therefore their procedures do not duplicate those of the earlier study. Where a replication is an articulate aim, exact reproduction of earlier procedures may not be possible or desirable (e.g., because of imperfections uncovered in the earlier study).

The second type of comparison is of age cohorts drawn from the same study. By dividing a sample into age categories, we can compare the mobility situation of these various age groupings, treating the age-related results as a time series. One difficulty is that we cannot be certain that the differences are due to differences in age or to differences in stage (the economic-social-educational experience in the period when the cohorts were growing up). That is, are the differences due to being age 30 or 50, and the 30-year-old will he be like the present 50-year-old when he reaches age 50, or are the differences due to the special experiences that those age 30 and 50 have had?

This deficiency can be met by combining replication and cohort studies, i.e., by comparing men of the same age in surveys carried out in different time periods. This will be possible to do for England and Wales (Oxford Study) and for the U.S.A. (Wisconsin-Hauser-Featherman). Unfortunately, data for these more solid comparisons are only available in fragments at this time.

A substantive problem of analysis in both types of studies is how to treat the still prominent manual-nonmanual divide, for its significance may have changed over time. In most studies, we still preserve movement across this divide as the central question, sometimes supplemented by comparisons of movement into elite positions.

Later in the analysis, I will comment on the restriction of most studies to males.

After this long introduction, we move now to an examination of trends in intergenerational occupational mobility in a limited number of countries.

France

For France, we can compare the INSEE study of 1953 (reported by Desabie) (1) with its 1964 study (2). The later study is restricted to adult males who were economically active both in 1959 and 1964; thus, younger workers are excluded from the study. The result is probably to increase the rates of mobility over those that would be found in a non-age exclusive study. Thus, we should expect the 1964 study to show higher rates than the 1953 study.

Table 1

Movement of Nonmanual and Manual Sons to Nonmanual and Elite Positions, France, 1953 and 1964

Occupational Change	1953	1964
Nonmanual to Nonmanual	73.1%	65.0%
Manual to Nonmanual	29.6%	27.8%
Nonmanual to Elite	17.1%	17.7%
Manual to Elite	1.6%	2.1%

The most striking and important finding is that there was a drop in the percentage of manual sons who moved into nonmanual positions (from 29.6% to 27.8%). While we should not make much of a decline of 1.8%, it shows that manual mobility has not been increasing.

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1) J. Desabie, La Mobilité Sociale en France, Bulletin d'Information No. 1, Paris : Institut National de la Statistique et des Etudes Economiques, January 1956.

2) Maurice Garnier and Lawrence E. Hazelrigg, "Father-to-Son Occupational Mobility in France: Evidence from the 1960's", American Journal of Sociology, 80, 2, September 1974, p. 485; Raymond Boudon, Education, Opportunity and Social Inequality: Changing Prospects in Western Society, New York: John Wiley & Sons, 1974, pp.134-35. These two reports of the studies do not seem exactly the same. I have relied on the Garnier-Hazelrigg presentation for almost all the data reported here as this article presents the data in a readily comparable form.

On the other hand, we should notice that nonmanual succession to nonmanual jobs has also declined and more sharply than manual mobility, so that the ratio of nonmanual to manual mobility into nonmanual positions has dropped (1). Furthermore, manual to elite mobility has risen relatively faster than nonmanual to elite. The relative gains here, I believe, do not offset the importance of the likelihood of an absolute decline in manual-to-nonmanual mobility.

Is it possible for the movement into nonmanual positions of both nonmanual and manual to be declining as shown in the table? Such an anomaly is arithmetically possible because they are constructed on different denumerators or bases or because of demographic patterns. The substantive explanations may rest in the fact that the relative size of the nonmanual strata declined from 36.9% in 1953 to 36.1% in 1964. (The elite sector of the nonmanual strata increased from 6.1% to 7.0%). In other nations, the nonmanual strata were increasing. While Garnier and Hazelrigg criticise the "bloqué" thesis, this tightness in the size of the nonmanual category seems to support the thesis of limited opportunities in France.

Geneva

Girod has analysed age-cohort data for residents of Geneva (2). He has compared the occupation of men at the age of 40 in two sub-samples studied in 1969. One sub-sample is of men born in 1919 or earlier; the other, of men born between 1920 and 1939.

Table 2

Movement of Nonmanual and Manual Sons to Nonmanual Positions, Two Cohorts, Geneva, Switzerland, 1969

Occupational Change	Born: 1919 or earlier	Born: 1920-1939
Nonmanual sons to nonmanual positions	69.5%	81.0%
Manual sons to nonmanual positions	44.5%	41.0%

Source: Girod, p.58.

Nonmanual sons have decidedly improved their chances of maintaining nonmanual positions, while manual sons have lost ground in gaining nonmanual positions. The mobility prospects of manual sons in Geneva have declined absolutely as well as relatively.

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1) Almost two-thirds of the downward mobility of nonmanual sons is due to the movement of sons of low-educated clerical or salaried nonsupervising employees.

2) Roger Girod, Mobilité Sociale: Faits Etablis et Problèmes Ouverts, Geneva and Paris: Libraire Droz, 1971.

U.S.A.

For the U.S.A., we use a variety of different data and analyses all pointing to the same conclusion that the mobility chances of manual sons have not improved.

We start with Blau and Duncan's 1962 study. They summarise their analysis of the relationship in the U.S. of occupational origins to first job (a useful, if limited, measure of intergenerational mobility) in these words ".... the influence of social origin has remained constant since before World War I. There is absolutely no evidence of 'rigidification'"(1). Or, from our perspective, these findings affirm that there has been no gain towards greater equality in social mobility. The complex manipulation of data presented by the authors can also be interpreted to show that there probably has been some loss (see Table 3). When comparing different cohorts,

Table 3

From Father's Occupation in First Job, For Four Age Cohorts, USA
(in percentages)

Cohort (year obtained 16) and Father's Occupation	Total	Respondent's First Job		
		White-collar	Manual	Farm
1943-52				
White Collar	100.0	57.6	40.6	1.8
Manual	100.0	24.7	71.6	3.7
Farm	100.0	15.1	45.6	39.3
1933-42				
White Collar	100.0	54.4	43.1	2.5
Manual	100.0	22.6	72.5	4.9
Farm	100.0	10.5	41.6	47.9
1923-32				
White Collar	100.0	54.5	42.6	2.9
Manual	100.0	25.5	69.2	5.3
Farm	100.0	9.1	36.1	54.8
1913-22				
White Collar	100.0	58.3	38.4	3.3
Manual	100.0	27.5	66.3	6.2
Farm	100.0	10.0	33.8	56.2

Source: Blau & Duncan, The American Occupational Structure, p.107.

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1) Peter Blau and Otis Dudley Duncan, The American Occupational Structure, New York: John Wiley and Sons, 1967, p.107. First jobs are an accepted measure of mobility because of the high correlation between them and later jobs.

classified by the period in which age 16 was attained, in terms of father's occupation and respondent's first job, we find that manual sons of the 1913-1922 cohort were slightly more likely than sons of the 1943-1952 cohort to obtain a first job that was in non-manual work (27.5 per cent compared with 24.7 per cent). A decline in mobility opportunities seems to have followed an increase in white-collar jobs. Another way of looking at the data shows a decline over time in the relative chances of manual sons to obtain a good initial job, defined as a non-manual position. The difference between manual and non-manual sons in chances of getting a nonmanual job were slightly greater in the more recent generation than in the older one. Hauser et.al. confirm this finding and declare that there is "no evidence of significant temporal change in the associations" of fathers' and sons' occupations (1).

The Blau-Duncan data of 1962 have been projected to 1972 by using the 1972 marginals for the distribution of occupations. Hauser et al. have moved the analysis from the first jobs analysed by Blau and Duncan for various cohorts to current occupations. Thus, they are comparing age groups in 1962 and 1972 in terms of the relation of fathers' to sons' occupations. They address the question whether the association between father's and son's occupation is greater or less than it was earlier. Their conclusion is that there is "no evidence of significant temporal change in the associations".

Hauser and associates have analysed the Blau-Duncan 1962 data on current job related to father's occupation for age cohorts. They conclude that "there are no significant differences in occupational mobility by age ...." (2).

Other evidence supporting the same conclusion is available from an array of studies done at different times in the United States. Between 1947 and 1957, the percentage of manual sons who became nonmanual declined (from 35.1 per cent in 1947 to 30.5 percent in 1957), while the percentage of non-manual sons who became nonmanual decreased relatively less,

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1) Hauser et al., op.cit., p.15.
2) Robert M. Hauser, David L. Featherman and Denis P. Hogan, "Race and Sex in the Structure of Occupational Mobility in the United States, 1962", Working Paper 74-26, Center for Demography and Ecology, University of Wisconsin, presented at the Eighth World Congress of Sociology, Toronto, 1974, pp. 7-8. The conclusion of this paper seems at variance with that of another Wisconsin paper where the 1962 Blau-Duncan data have been projected to 1972 by using the 1972 marginals for the distribution of the labour force. Hauser et al. report that "at every age but 60 to 64 years, the volume of upward mobility is greater than in ... 1962 ...." (Hauser et al., p.30). Some of this mobility is undoubtedly movement within both the nonmanual and manual strata so that upward mobility of the manual strata may not have increased.

from 70.8 percent to 66.4 per cent (1). These two comparisons, with all their difficulties, suggest that the relative mobility opportunities of manual sons (when compared with non-manual sons) is *decreasing* in the United States. Hauser et.al. confirm this conclusion: "Empirically, we have observed that in several bodies of data for U.S. men, the multiplicative associations between father's and son's occupations are largely invariant with respect to time. Of course, it is always a logically difficult matter to maintain the null hypothesis, but we think we have offered sufficient evidence of temporal invariance to place the burden of proof on him who would offer a more plausible alternative hypothesis and supporting data."(2).

Boston, U.S.A.

We move from national studies of mobility trends in the U.S.A. to the investigation of trends in an American city, Boston, in the state of Massachusetts. The historian Stephan Thernstrom, who has introduced young American historians to the use of census data, has analysed trends in mobility in the Boston area for a long time period (3). While the data for the last cohort (age 33 at the time of the study) might be misleading for those persons might still be moving up or down in the occupational hierarchy, the general picture does not support the notions of sizable increases in mobility for working-class sons or of improvement in the opportunities of working-class sons relative to those of middle-class sons.

If we take the 3rd and 4th lines and the first and last columns of Table 4, we can see more clearly that working-class sons have not improved their likelihood of obtaining middle-class jobs compared to the chances of middle-class sons.
In Table 5, we have changed line 5 to middle-class sons remaining in white-collar jobs by subtracting from 100 per cent the percentage of them who move to blue-collar jobs.

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1) Elton F. Jackson and Harry J. Crockett Jr., "Occupational Mobility in the United States: A point estimate and trend comparison", *American Sociological Review*, 29 February 1964.
2) Hauser, Featherman and Hogan, *op.cit.*, p.27.
3) Stephan Thernstrom, *The Other Bostonians: Poverty and Progress in the American Metropolis, 1880-1970*, Cambridge, Harvard University Press, 1973.

Table 4

Intergenerational Occupational Inheritance and Mobility across class boundaries, percentages, various cohorts; Boston, U.S.A.

Last job compared with father's	Birth Cohort				
	1840-59	1860-79	1870-89	c.1890-1930	1930
1. In father's class	70	66	64	73	67
2. In different class	30	34	36	27	33
3. Working-class sons attaining white-collar jobs	41	41	43	36	34(1)
4. Middle-class sons skidding to blue-collar jobs	20	17	24	12(2)	29(3)
5. Ratio of upward to downward mobility	2.1	2.4	1.8	3.0	1.2
Number in sample	208	784	193	405	202

(1)Significantly lower than 1840-1859, 1860-1879, and 1870-1889.

(2)Significantly lower than 1870-1889 and 1930.

(3)Significantly higher than 1860-1879 and c.1890-1930.

Source: Stephan Thernstrom, The Other Bostonians, Cambridge: Harvard University Press, 1973, p.86.

Table 5

Middle-class and Working-class Sons in White-collar Jobs Boston, U.S.A., 1840-1859, 1930 Cohorts

	Birth Cohort (percentage)	
Last job compared with father's	1840-1859	1930
Middle-class sons in white-collar jobs	80%	71%
Working-class sons in white-collar jobs	41%	34%

We should not make too much of these data, but they should make us hesitate in concluding that manual mobility has been increasing. Thernstrom (pp. 87-8) stresses that the drop from 41% to 34% between 1840-59 and 1930 is probably accurate because of the likelihood of continuing upward mobility in the later cohort, but he does not argue that anything more than the old pattern of 1840-59 will have been continued. Great gains in mobility have not been achieved in Boston. It may be that mobility opportunities (defined as moving from blue-collar to white-collar status) have actually declined. Certainly, working-class sons do not seem to be doing as well in the more recent period as they did earlier in the race with middle-class sons to white-collar positions.

Thernstrom declares (p.104): "... it appears that there was rather striking uniformity in the process of inter-generational occupational circulation in the community over this entire period". Thernstrom's theme is "that there was striking stability in the process of social circulation in Boston throughout the past century. Not only total intergenerational mobility, but the relation between total mobility, minimum structural mobility, and expected mobility varied remarkably little over this long span of years." (p.107).

Thernstrom resoundingly concludes his chapter on social-class origins and occupational achievements (p.110): "Despite the dramatic changes that have taken place in Boston, and in American society in general, over the past century, there was an element of remarkable, almost eerie continuity. There was a calculus of possibilities that governed the likelihood that a young man from a particular kind of family would himself enter a given occupational stratum, a calculus that was nearly identical for youths born at any time between 1840 and 1930.".

England and Wales

What is undoubtedly the most careful job of replication yet done is that of the Oxford/Nuffield Mobility Study. Unfortunately, the study has not made available the basic tables which could facilitate comparison of their 1972 results with those of the Glass et.al. in 1949. The summary work that has been made available does not permit comparison of changes in the prospects of males of different social origins at the same age in the two periods (1). Further, the available report does not deal with overall or total mobility, but only with "exchange mobility", that mobility which cannot be attributed to changes in the occupational structure and therefore indicates fluidity in the social structure.

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1) Keith Hope, "Trends in the Openness of British Society in the Present Century", Nuffield College, Oxford, May 1974, mimeo.

Hope's careful conclusion (p.34) is that "no significant signs of trends in intergenerational exchange mobility can be detected. ... it may be concluded that, so far as men are concerned, the occupational structure of England and Wales is no more open today than it was fifty or sixty years ago ....." (p.35). These statements are overall statements and do not reveal the relative opportunities of manual sons. Also, total mobility patterns could show growth in mobility rates for manual sons even though exchange mobility rates did not change.

A different set of comparisons, based on much weaker data, points in the same direction of no improvement in the relative situation of manual sons. Studies in 1949 and 1962 in England and Wales have been compared by MacDonald and Ridge(1). In the earlier year, 57.9% of nonmanual sons entered nonmanual occupations compared with 24.7% of manual sons. In 1962, nonmanual sons had sizably improved their situation, for then 68.3% were in nonmanual slots; in this same year, manual sons' opportunities to enter nonmanual occupations had hardly changed: 24.9% were in nonmanual occupations. Manual sons had not improved their chances of pushing past the nonmanual barrier while nonmanual sons had decreased the likelihood of falling down into nonmanual positions. Thus, the spread between nonmanual and manual sons in relative opportunity widened.

As I was completing this paper, I received a copy of the basic data of the Oxford mobility study. While I am not allowed at this point to give specific results, I can state that the data show high rates of mobility, particularly when compared to the results of the 1949 data (2). This is true both for the percentage of manual sons in nonmanual and in elite positions while the percentage of nonmanual sons in nonmanual employment has increased sizably, the growth of manual sons in these positions has increased more. (It should be noted that the size of the elite groups is almost three times greater in the Oxford Study

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1) Kenneth MacDonald and John Ridge, "Social Mobility", in A.H. Halsey (ed.), Trends in British Society since 1900, Macmillan St. Martin's Press, London, 1972, p. 146. There is a problem of comparability in the two studies since in the later survey some respondents were women and their husbands' and fathers' occupations were tabulated. MacDonald and Ridge indicate their doubts about the reliability of the comparison of the two studies.

2) The difference in results when compared with the information reported earlier in this paper is that Keith Hope was referring to exchange mobility - the mobility not produced by a change in the marginals or in occupational distributions between the fathers' and sons' generations. Problems of comparability between the 1949 and 1972 studies seem to be considerable.

than in the 1949 investigation). Whether this is a real change in the number of elite positions or a broader classification of elite positions is an important issue in this and other studies.

On the other hand, the preliminary work on cohorts (which I have not seen) seems to be showing that the manual sons have not gained relatively to nonmanual sons when later age groups are compared with earlier ones.

Québec French-Canadians

Turrittin has compared two studies (1954, 1964) of French-Canadians in Québec (1).

Table 6

Manual, Nonmanual and Farm Sons to Nonmanual Positions Quebec French-Canadians, 1954 and 1964

	1954	1964
Nonmanual to Nonmanual	53.9%	64.8%
Manual to Nonmanual	22.4%	37.5%
Farm sons to Nonmanual	8.7%	22.0%

Sources: 1954 - Ives de Jocas and Guy Rocher, "Intergenerational occupational mobility in the province of Québec," *Canadian Journal of Economics and Political Science*, 23, 1957, pp.58-66. 1964 - Jacques Dofny and Muriel Garon-Audy, "Mobilités professionelles au Québec", *Sociologie et Sociétés*, 1, 1969, pp.277-301, as reported in Turrittin, p.168.

Manual, nonmanual and farm French-Canadian sons have improved their chances of obtaining white-collar jobs in this 10-year period. Manual sons' chances have improved both absolutely and relatively. Farm sons' mobility has increased even more rapidly.

These French-Canadian findings should, however, be reviewed in a broader context than the table permits. French-Canadians in Québec are being compared with themselves at two time periods. Perhaps the more apt comparison is with the non-French in Québec; for this large group may have advanced even more rapidly than the French-speaking Québecois. Unfortunately, we do not have data on this point and can simply conclude that French-Canadian manual sons have had a sizable improvement in their chances of moving into nonmanual slots.

1) Anton H. Turrittin, "Social Mobility in Canada: A Comparison of Three Provincial Studies and Some Methodological Questions", *Canadian Review of Sociology and Anthropology*, August 1974, pp.153-86.

Scandinavia

In the following sections, trend data are reported for Sweden, Norway and Denmark. (A comparison could be made for Finland as well, but I have always distrusted the 1951 study of that country). In 1971, a study was made of the four Scandinavian countries aimed at producing comparability among them; small samples (around 450) were used in each country. My information on this study is very meagre, so I am even less confident than usual about the comparability of the data with the earlier studies in these countries. This is a great problem because the Swedish and Norwegian results are opposite to the findings reported earlier of no relative improvement in the opportunities for manual sons to move to nonmanual positions. While it can be instructive to explain deviant cases, it is a good general principle not to explain why something is as it is until one is sure that it is as we think it is. Nonetheless, some explanation of why Sweden (and French Quebec) are different are offered below.

Sweden

For Sweden, we have several bases of comparison. The Carlsson study of 1950 (1) can be compared with two later studies - the Eriksson study of 1968 for the Low-Income Commission and the study of the four Scandinavian countries that was done in 1971 (2). In addition, the Eriksson study permits comparison of cohorts. (I assume that the studies are comparable, although some informants are very doubtful).

Table 7 compares the movement of nonmanual sons into manual occupations and that of manual sons into nonmanual positions for the three studies.

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1) Gösta Carlsson, *Social Mobility and Class Structure*, Lund: C.W.K. Gleesup, 1958.
2) One difference between the 1968 and 1971 studies is that the former covers ages 15-75, the latter 15-64. For comparison purposes, farmers are included in nonmanual in the 1971 study, which may differ from procedures of the 1968 study.

Table 7

Movement of Manual and Nonmanual Sons to Nonmanual and Elite Positions, Sweden, 1950, 1968, 1971

	1950	1968	1971
Manual to nonmanual	25.5%	35.9%	32.3%
Nonmanual to nonmanual	72.3%	59.7%	72.6%
Nonmanual to elite	25.1%	17.2%	34.7%
Manual to elite	3.5%	3.7%	11.3%

Sources: 1950 - Carlsson; 1968 - Robert Eriksson (Vol. 6 of Low Income Study) as reported by Lindbeck (this volume); 1971 - Pöntinen (personal communication).

There are important variations between 1968 and 1971, but if we focus on basic patterns, we can see the two later studies as somewhat converging. Compared to 1950, nonmanual sons have not improved their chances of attaining nonmanual status while manual sons have improved theirs. Manual sons have improved or not worsened their chances of attaining elite status; the elite opportunities for nonmanual sons is uncertain because of the big differences between the 1968 and 1971 studies (17.2% to 34.7%).

We have additional evidence on Sweden based on cohorts in the 1968 study. The question here is of men born in two particular time periods, what percentage of nonmanual sons and of manual sons had nonmanual positions?

Table 8

Movement of Manual and Nonmanual Sons to Nonmanual and Elite Positions, Sweden, two cohorts (born 1892-1918, 1918-30), in 1968

	50-75 years old	30-49 years old
Nonmanual to nonmanual	61.9%	64.9%
Manual to nonmanual	30.9%	40.9%
Nonmanual to elite	17.1%	20.0%
Manual to elite	3.2%	6.3%

Source: Eriksson in Stephen Margolin, Long, Long Time on the Way: Economic and Social Rights in the Advanced Capitalist World, prepared at the request of the Special Rapporteur, Division of Human Rights, United Nations, January 1973, Part II, Tables 2-4.

Manual sons in the younger cohort (30-49 years old), born in 1918-1930, had distinctly higher mobility rates into nonmanual slots than manual sons in the older cohort (50-75 years old) born in 1892-1918. Furthermore, the differential between manual and nonmanual sons in obtaining nonmanual positions declined. Manual sons improved their absolute and relative chances of obtaining nonmanual positions. Both nonmanual and manual sons gained in access to elite positions. While the absolute gain was the same, the relative differences between the two groups declined.

The Swedish data do not support the hypothesis that manual sons have not improved their mobility opportunities relative to those of nonmanual sons.

Norway

In Norway one can compare the 1971 study with the earlier analysis for 1957 that was done by Rokkan (1). Below three comparisons of movement into nonmanual occupations: sons of nonmanuals, of manual workers, sons of manuals plus farmers. The latter combined category is used in the hope of inducing greater comparability between the two studies, though I am not sure that it does. Elite data are not available for the 1957 study.

Table 9

Movement of Nonmanual, Manual, and Manual and Farm Sons into Nonmanual Positions, Norway, 1957, 1972

Movement of Sons	1957	1971
Nonmanual to nonmanual	72.1%	71.4%
Manual to nonmanual	25.8%	45.6%
Manual and farm to nonmanual	23.2%	37.8%

Source: 1957 - Rokkan in S.M. Miller, p.71; 1971 - S. Pöntinen (personal communication).

Nonmanual sons had not improved their high chances of staying in nonmanual positions, but manual and manual and farm sons drastically improved their likelihood of ending up in nonmanual occupations. Manual and farm sons had improved their chances absolutely as well as relatively. Thus Norway, like Sweden, does not support the general position outlined above.

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1) Stein Rokkan prepared special tabulations of a survey; the results are reported in S.M. Miller, op.cit., p.71.

Denmark

It is possible to compare the 1954-5 results of Svalastoga's study of Denmark with those of the cross-Scandinavian survey of 1971 (1). The trend supports the hypothesis started earlier.

Table 10

Movement of Nonmanual and Manual Sons into Nonmanual and Elite Positions, Denmark, 1954-5 and 1971

Movement of Sons	1954-5	1971
Nonmanual to Nonmanual	63.2%	68.7%
Manual to Nonmanual	24.1%	23.3%
Nonmanual to Elite	6.0%	32.2%
Manual to Elite	1.1%	7.5%

Source: 1954-5 - Svalastoga; 1971 - S. Pöntinen (personal communication).

While nonmanual sons between 1954-5 and 1972 improved their chances of obtaining nonmanual positions (63.2 per cent to 68.7 percent), manual sons did not (24.1 per cent to 23.3 per cent)(2). The differences in access to elite positions widened between those two periods: nonmanual sons improved their chances of attaining elite positions from 6 percent in 1954-5 to 32.2 per cent in 1972, while manual sons moved from 1.1 percent to 7.5 per cent in attaining elite positions. Although the ratio of nonmanual to manual movement into elite positions somewhat declined, the more important change is that manual movement to elite positions increased by 6.4 percentage points while similar nonmanual movement increased by almost 26 percentage points.

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1) Kaare Svalastoga, Prestige, Class and Mobility, Copenhagen, 1959, p.130. How to make this study comparable with that of 1972 is uncertain. In the text above, I have combined manual and farm sons in 1972 and compared them with manual sons in Svalastoga's study. This may not be appropriate.

2) If only manual sons in 1971 were compared with those designated as "manual" in 1954-5, then manual sons could have improved their chances -- from 24.1 percent in 1954-5 to 31.1 percent in 1971. I do not believe that this is the real comparison but, as indicated in the preceding footnote, I am not sure.

The difference in patterns among Sweden, Norway and Denmark may be due to differences in occupational distribution (or the coding of them). In Denmark, the percentage of sons in the nonmanual category increased by less than in the other two countries. On the other hand, the size of the elite category increased much more in Denmark, explaining the enormous increase in Denmark in nonmanual movement into these positions.

F. Losing a Hypothesis

I have been able to work out explanations of why Sweden and French Québec do not follow the general pattern of no improvement in the relative prospects of manual sons. I do not know enough about Norway to attempt an explanation. The latest data for Britain, a country I know something about, surprises me and no ready explanation occurs to me. Of course, the change may be artifactual - the 1949 results may be unreliable. Or there may be imperfections in the Oxford study. Or the two studies are just not comparable. Or the cohort data of the later study may conflict with the comparisons with 1949. Or 1949 was a very special year because of the continuing dislocation of the war.

But the British case makes me move to a new position. When a majority of the comparisons do not sustain the working hypothesis, it is difficult to think in terms of deviant cases which do not overthrow the hypothesis (1).

The intriguing issue is why are the chances of manual sons relatively (and sometimes absolutely) unimproved in a number of countries while improved in others? This outlook is much more encouraging than my initial hypothesis, because it suggests that we are not dealing with an intractable problem that has beset all nations about which we have information. If we can uncover the factors that promote mobility chances in some countries, we may have a way of thinking about how to get similar results in others.

Explanation

Attempting to explain the results above may contribute to the formulation of policies and further research. I do not attempt an explanation of results in all countries but for Sweden and French Québec, where results do not support the original hypothesis, and for the United States, where they do. Then, two modes of explanations of social mobility patterns are offered that spring from a general interpretation of the influences on social mobility. Most of the discussion is about intergenerational occupational mobility, but some of it pertains to stratum mobility as well.

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1) Studies of other nations may lead to emphasis of the basic hypothesis or deviance from it. But as of now, the deviance is perhaps the more compelling. Also, the later Swedish and Norwegian data are from the same study, which may systematically vary from earlier studies in these two nations.

A. Excluded Members in Sweden and Elsewhere

What may be producing high upward mobility figures for Sweden is the exclusion or undercounting of foreign workers. I do not have information on whether the recent Swedish studies include foreign or "guest" workers. At the least, they are undercounted.

Sweden doubled its number of alien workers between 1961 and 1972. In the latter year, all but 14 percent were in manual or agricultural employment. (Half of alien workers were Finns; most Finns are in manual work). A high percentage of manual workers in Sweden in 1972 were not Swedish. If they are not proportionately counted in a study of social mobility, then the size of the current manual population is undercounted, as is the number of manual workers in the parental generation. The end result is that mobility from the manual strata upward is higher than it would be if we studied all people in the current labour force in Sweden. In a sense, an underestimate of foreign workers is limiting a study of occupational mobility to those manual sons most likely to rise (because they are Swedish).

I admit to being uncertain on exactly how foreign workers should be treated in conceptualising the class structure of contemporary industrial society (1). But in terms of social mobility, it seems clear that ignoring them pushes up the reported rate of intergenerational occupational mobility. An undercount of foreign workers of, say, three percent can sharply affect mobility rates because of their concentration in the manual strata.

The problem of ignored or undercounted foreign workers is not an uniquely Swedish issue. Their numerical and economic importance is well known in many countries, where a high proportion of manual labour is performed by them (2). In some countries, like the United States, their significance is just beginning to be recognised. It has long been recognised in the U.S. that many migratory workers in agriculture are legal and illegal Mexican workers whose permanent locale is not the United States. Suddenly public officials are concentrating - perhaps because of growing unemployment - on the number of illegal workers and their families. I have heard estimates varying between two and 16 million illegal entrants currently living in the United States. (The foreign agricultural workers are probably less than a million).

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1) See Stephen Castles and Godula Kosack, Immigrant Workers and Class Structure in Western Europe, London: Oxford University Press, 1973.

2) An implication for countries with a high percentage of undercounted foreign workers and no gain in absolute or relative opportunities of manual sons is that the situation may be worse for manual sons than the data reveal.

The separation of whites and blacks in studies in the United States similarly poses problems. For as blacks become more important as members of the manual labour force, depicting trends in the experience of white sons of manual workers presents a misleading picture of what happens to the manual strata.

The same situation occurs in most studies where males are analysed separately from females. As women become an increasing percentage of both the manual and nonmanual sectors, a rise of, say, working-class sons to high positions may overestimate the long-distance mobility of all manual offspring and underestimate short-distance mobility as manual daughters move into the lower-level positions in nonmanual sectors.

The situation of women heading households has become an increasingly important problem in the United States, and my guess is that it is likely to grow in other countries, though not to the American proportion. Most social mobility studies do not include them, though they are included in household income studies.

With the increasing difficulty of conducting surveys and the likely situation of undercounting those at the bottom, we are in danger of constructing a variant of "economic man", namely "statistical man" - reporting on those who are accessible to surveys and ignoring the fact that we have not included many of those at the bottom.

Compounding these difficulties is what appears to be an increasing variation among those in manual work. The upper part has improved in many ways, even if the gains are often exaggerated. But there exists a sub-strata of highly disadvantaged, marginal, frequently ethnically concentrated populations who are treated in pariah-like fashion. Averaging the manual strata obscures these developments.

The argument here is to avoid focusing on only one special sector of the manual strata. This may be displeasing to the permanently resident, male members of the labour force, but it is necessary if we are to have a comprehensive picture of trends in the society.

B. Change and Pressure in Québec

Turrittin believes (p.30) that the improved occupational prospects of the Québecois were not due to the expansion of education. He observes that "the position of French-Canadians in the economy of Québec was changing before the Quiet Revolution (the social reforms of the 1960's aimed at producing greater economic opportunity for French-Canadians) and before the major educational reforms in the province beginning in 1964". The high upward mobility rates are largely due to structural changes - the expansion of the economy.

Another factor may be involved in the Québec case. Political pressure has been brought to bear for a long period of time to employ more French-Canadians and to promote them. Without economic expansion, Québecois would not have been selected for nonmanual positions, but the expansion might not have had this effect in the absence of pressure for bettering the employment situation of the French-Canadian.

Recent evaluation of American blacks' employment experience supports this view. Economic expansion in the 1960's was the major factor in opening up better jobs to blacks. But legislation (such as the Civil Rights Act of 1964) "aimed at fostering equal opportunity in employment" also played a role. Companies subject to these laws "are opening jobs to blacks at a rate much faster than is true for all employers in the country as a whole" (1). Pressure makes a difference where groups have been discriminated against because of ethnic, class or racial background (even where their educational levels have risen).

The combination of a structural expansion of better jobs and political pressure can be effective in improving the mobility prospects of manual offspring. This conclusion assigns low importance to education. (In the Quebec case, important changes in schooling may have occurred without a direct policy aimed at changing the scope and character of schools).

C. Credentialism and Duality in the U.S.A.

The United States has been spending a higher proportion of its gross national product on education than most other countries; the average number of years of schooling for Americans has increased enormously. But the rise in educational levels is not reflected in increases in social mobility rates for manual sons, both absolutely and relatively. How to explain the blunted effects of rising schooling?

One explanation is what I have called "credentialism" (2). As educational levels rise, the educational requirements for jobs also

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1) Andrew Brimmer, "Widening Horizons: Prospects for Black Employment," A commencement address at Prairie View A & M University, Prairie View, Texas, May 5, 1974. (Brimmer was a governor of the Federal Reserve System at the time of the address). The National Manpower Policy Task Force, a group of U.S. manpower experts, adopted this perspective in its position paper, "The Status of Black Employment", January 1975, pp. 1, 10-12.

2) S.M. Miller, "Breaking the Credentials Barrier", Ford Foundation, 1968, reprinted in S.M. Miller and Frank Riessman, *Social Class and Social Policy*, New York: Basic Books, 1968; Ivar Berg, *Education and Jobs: The Great Training Robbery*, New York: Praeger, 1971; Boudon, *op.cit.*, pp.148ff.

rise, frequently in little relationship to the actual need for education in performing the particular job. The result is that the tipping point at which education makes a difference for an individual's job future also rises. Thus, rising educational levels may not result in greater mobility.

For example, in England the "18 plus" has become an issue. The "11 plus" referred to the great break in education which took place in schools at the age of 11; at this age, the assignment of a student to a grammar school or a secondary modern school (of presumably lower educational standards) occurred. Since the assignment was made early and was in fact (if not in plan) permanent, social class factors were undoubtedly exceedingly strong. The examination and other standards to be passed at the age of 11 divided the educational futures of youth - whether they were likely to go to school until the age of 15 or longer, take 'A' Levels and go to university. With the elimination of the "11 plus" arrangements, the issue now is whether youth who have completed secondary school will be able to go to university, hence the term "18 plus". As average schooling rises, the point at which it advantages a person also rises, so that the rationing of opportunity takes place at a later point in one's school career.

A second factor of importance in the American scene is that the labour market is stratified or segmented. Instead of a simple queue where workers are lined up in terms of attractiveness, several labour markets exist. The less attractive workers are almost never employed in the more attractive enterprises; their background (race, ethnicity) and the views of them (e.g., irregular work patterns) operate against them. They are employed in firms which provide little economic security, pay low wages, offer few amenities, and do not train or upgrade their labour force (1). While many young people enter the labour market in these low-level jobs, those who do not rapidly move out of them are likely to stay in them for their entire work life (2). The difficulty of

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1) These issues have been discussed in terms of the "dual economy" (following Boeke's discussion of the Dutch East Indies) and the "irregular economy". See S.M. Miller, "Poverty, Race and Politics", in Irving Louis Horowitz, ed., The New Sociology: Essays on Social Values and Social Theory in Honour of C.Wright Mills, New York: Oxford University Press, 1964; Peter Doeringer and Michael Piore, Internal Markets and Manpower Analysis, Lexington, Mass., D.C. Heath, 1971; David Gordon, Theories of Poverty and Unemployment, Lexington, Mass.: D.C. Heath, 1972; S.M. Miller and Martin Rein, "Barriers to Employment", in Manpower Report of the President, 1968, reprinted in Rein, Social Policy, New York: Random House, 1970.

2) Dahrendorf had an opposing interpretation of British unskilled work for an earlier period. He concluded that unskilled work was a temporary condition; people moved into and out of it, falling into it after an illness, say, and then being able to move back to a higher-level position after a while. Ralf Dahrendorf, Unskilled Labor in British Industry, unpublished Ph.D. thesis in sociology, London School of Economics, 1956.

breaking out of low-level firms and the absence of an internal labour market which permits the upgrading of employees within these marginal enterprises lowers upward mobility rates and probably aids the maintenance of wage differentials (as the pool of unskilled workers does not decrease) (1).

The great value of this approach is that it places emphasis upon the character of specific labour markets and the nature of specific job structures. These issues have been generally neglected in discussions of social mobility, where the emphasis has been heavily on the role of education, general levels of industrialisation, rates of urbanisation and the like.

D. Privilege and Contest: The Supply Side

Following Boudon, a useful approach is to interpret the processes of mobility as a contest in which privilege, performance, stigma and scarcity all operate. Let us assume that the occupational structure is a given and that all in the labour market are freshly involved in sorting themselves and being sorted into occupational niches. Those of high social origins have an advantage in getting the high positions in society, that is, they are privileged. And if they go to elite schools and perform at least adequately, they are super-privileged; they take a sizable slice of high-level jobs. The remaining good jobs have to be divided among the large number of remaining persons. Some of the privileged go into the next level of jobs, but some nonmanual sons with high education ard ability are able to get into high-level occupations. Outstanding working-class sons are able to move into the remaining elite and nonmanual positions. But less and less of these elite-nonmanual positions are left over. Some nonmanual sons either get low-level nonmanual jobs or move down into manual positions. Many manual sons with limited education have little chance of obtaining high-level jobs and are competing with many nonmanual sons for the lower-level nonmanual positions. Rising levels of education are increasing the pool of potential nonmanuals and the competition for the better manual and many lower-level nonmanual positions. Lower-level manual sons, because of low education, cultural attitudes and stigma, have little chance of moving far up in the manual sector.

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1) Some employers who pay low wages may have a strong upgrading system. At his death, Richard Titmuss was planning to write a book showing that government employment had done more to get working-class youth into higher-level employment (through promotion from below) than had the expansion of schooling in the U.K.

Thus, what we have is privilege, competition, performance, and stigma, all operating to determine who gets what position (1). (And, of course, fertility, which determines how many competitors there are from each of the social classes). Social policies can aim at affecting all four. To deal with education alone may not be effective.

Stratum mobility is affected frequently by the regulation of supply. In the U.S.A., for example, medical schools produced less physicians in 1960 than in 1910 (I have not been able to get the exact figures, but my recollection of them is clear); one effect, undoubtedly the motivation, was to drive up doctor's salaries. Differentials may not have narrowed because of the ability of privileged groups to restrict access. On the other side, introducing new unskilled workers from domestic rural areas in other countries prevents unskilled wages from increasing as manual sons move to nonmanual positions.

This discussion has been about the supply side. I turn now to the demand side.

E. Making an Occupational Distribution

Almost all discussions of occupational distributions, at least as far as mobility is concerned, assume that the occupational distribution is given. It is not considered to be influenced by mobility processes. Rather, it is conceived as the interaction of a technology and market demand. This is far from the actual situation. The activities of members of the labour force, consumers, governments and enterprises all affect the occupational distribution.

Labour force participants. An extreme case: no elite position was waiting for Henry Ford to fill it. Ford made the position. Just as many small and not-so small entrepreneurs constantly do. Similarly with many so-called "free professionals" who establish themselves as independent businessmen pursuing professions.

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1) I have classified the contestants in the following categories, which give names to Boudon's educational classes (pp. 143ff):

   1) the super-advantaged (high social background, advanced education);
   2) the advanced (high social background, acceptable education/ adequate social background, high education);
   3) the competitors (low social background, high ability - or vice versa);
   4) the near competitors (attend community colleges or lower universities);

   3) and 4) make up the bulk of Crozier's "bloquées";

   5) the disqualified (in the marginal economy with little chance to break out);

   6) the economic cushion (foreign workers who may be forced to leave the country or domestic ethnic groups (blacks) who absorb most of the shock of stabilising the national economy);

   5) and 6) may overlap.

If manual workers are unwilling to take certain kinds of jobs at prevailing wages, then the positions may be unfilled (e.g. the drastic reduction of the servant class in England) or cheaper workers may be imported or new technology may be employed. How businesses act and react affects the numbers employed in particular positions and the pay for that work, as does the efforts of professional associations and unions to regulate entrance into positions.

Consumers. The price at which goods and services are offered consumers is partly a reflection of the wages and salaries paid. Changes in the attractiveness of particular jobs (in terms of pay, working conditions, location, alternatives) affect the number of workers available and thus the costs of production, prices and the demand for the product. Wages in many service fields, at least in the U.S.A., are increasing as employees organise into unions and as low-level service work becomes increasingly unattractive to minority workers and women; the result may be that the long-time rise in the demand for services may decrease if the wage differentials between service workers and manufacturing workers declines.

Government policies. If taxes are an increasing percentage of gross national product, and if tax funds are increasingly used for education, social services and the like, the distribution of the labour force necessarily changes. While one can consider this decision a choice of consumers as citizens, it is obviously not an economic market choice. The desire to increase the demand for one or another kind of employment influences these political decisions. This is presently occurring in the U.S.A., where the slackening of blue-collar employment is partially offset by increases in (largely white-collar) public employment.

Almost all governmental decisions have distributional consequences for employment and income. An increase in defense spending for research and development increases the employment of and bids up the income of engineers, scientists and technicians. An increase in public construction as a counter-cyclical stabilising device rather than in military activities has different consequences in terms of who is employed at what incomes.

Enterprise policies. Technology and expertise do not determine what kinds of labour are employed and in what ways. It is generally believed, for example, that American enterprises have far more supervisors and white-collar employees than comparable factories in other countries. The way that tasks are divided, say, among physicians, registered and practical nurses, ward attendants, is only partially related to a rational division of labour.

Enterprises may have broken mobility ladders or dual mobility ladders so that individuals cannot progress to a high point on one ladder if they started on another or have little chance of any progression at all.

Or, employers may have a "taste for discrimination" and refuse to hire in some positions certain kinds of workers, e.g., refusing to employ women in executive posts.

What is produced and the technology employed in production do not solely determine the division of labour (the number of different kinds of positions in the nation) and the possibility of internal mobility within the enterprise or industry. A wide variety of other considerations (e.g., tradition, protectionism, discrimination) affect the way tasks are constructed and combined into positions. In nations which have well-constructed occupational ladders, mobility may be higher than similarly situated countries which do not.

The occupational distribution of a nation may be a public policy issue if mobility is to be increased or if wage differentials are to be decreased.

The general theme of the analyses offered in this section is to connect the study of mobility to the interpretation of labour market processes. The emphasis on the role of education in mobility is misplaced if it leads to neglect of the operations in the labour market. Education is an important but certainly not a solitary element in the sorting of individuals in the labour market. And it only limitedly deals with the development of the positions into which individuals are sorted. While the study of education deals with the sorting of individuals, it does not connect realistically to the process of sorting of these individuals in the labour market.

What the study of occupational mobility requires is not only linkage to schooling but to labour market processes (1). (I hasten to add that I do not think human capital theory does that).

F. Overrelying on Education

It should be noticed that much of the foregoing analysis of explanations was not done at the level of personal attributes, as in path analysis. I have looked for the broader economic and social forces influencing mobility rather than searching for the "causes" of mobility at the level of education or family size. Where individual attributes have been stressed, as in the competition approach, they are immediately linked to the job structure. Moving beyond individual attributes and linking economic and social processes seems to me the core elements of policy in regard to social mobility.

Social policy in most countries has been oriented to offsetting the effects of some economic policies and structures or to building social institutions to deal with issues neglected by these economic structures. But social policies have not been oriented to affecting economic processes. Education, therefore, has been considered a key element in social policy; it is used to

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1) Jan Pen, Income Distribution, London: Allan Lane, The Penguin Press, 1971, p.265.

pursue vital goals of greater social democracy without directly affecting economic processes. That it has proved disappointing should be no surprise (1). For it has been assigned too great a task. If economic processes are so important that they should not be interfered with even for important social goals, then it is unlikely that non-economic policies can achieve what economic actions do not.

Research Recommendations

I recommend five blocks of studies dealing with occupational mobility, education and mobility, occupational structures, wage differences, and the goals of equality.

A. Mobility Studies

Six steps should be undertaken with regard to intergenerational occupational mobility studies:

(i) New data. Soon new, high quality data will be available in detail for the U.K. and U.S.A. and probably for several other nations. They should be studied in great detail for the information they will provide on mobility processes and trends. The data provided above have been analysed only from the standpoint of trends, not processes (e.g., which occupations are the ones that mobile manual sons are most likely to enter). We are at the beginning of new possibilities in the study of occupational mobility.

(ii) Inflow analysis. Inflow analysis, ignored in this paper, should be related to outflow analysis. The privilege-competition model of Boudon is one way of doing this. Which countries have the lowest percentage of elite occupations held by offspring of elite parents? What led to this pattern? What are the consequences for the mobility of non-elite offspring?

(iii) Minorities and women. Increased emphasis should be placed on the importance of women, foreign workers, ethnic minorities in mobility processes and rates. Countries should be encouraged to undertake studies of the occupational lives of these neglected groups.

(iv) Path analysis. Despite the many difficulties of path analysis, it would be useful to compare the importance of various individual attributes (e.g., respondent's education, father's occupation and education) on an individual's occupational level and income in several countries (2). Why should education have a higher payoff for a particular group of individuals in one country than another?

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1) S.M. Miller and Martin Rein, "The Possibilities of Income Redistribution", Social Policy, forthcoming.

2) Among the difficulties of path analyses have been the low amount of explained variation, the concentration on individual attributes apart from societal changes and structures, the assumption of unilinearity, and the difficulty of translating "other things remaining equal" conclusions into policy recommendations.

Path analyses should be connected to societal structures and processes. Particularly, how do large-scale economic and occupational changes affect the size of path coefficients?

(v) Intra-generational mobility. Career or intra-generational mobility has been ignored in this report. Important information is now becoming available in several countries, and it would be useful to analyse these data. Especially important would be to link intra-generational mobility with inter-generational mobility. Do the offspring of manual fathers have different career and income patterns than the offspring (with similar education) of nonmanual fathers? Husén and others have information on this kind of issue. We need more detailed analyses for many nations. Of particular concern is the examination of career patterns to see to what extent labour market stratification occurs, as indicated by obstacles to moving out of marginal positions.

(vi) Qualitative approaches. The sophistication of mobility analysis has strengthened the social science practice of looking at blocks of data torn out of historical context. It is important to look at trends in mobility in terms of what was happening specifically in that society (e.g., economic and occupational growth, political and social pressures against or for discrimination, strengthening of selective practices in schools despite legislative pressure for their relaxation). Methodological sophistication can produce historical idiocies.

Schooling has had the peculiar history of becoming a favourite tool of the policy-maker and a weak tool for the social scientist to explain economic status. Too much debunking of education has occurred (to which I have contributed) and too little effort has been made to find out what schooling can accomplish (1).

The appropriate questions, it seems to me, are: what are the effects of schooling under these or those conditions? What kind of circumstances diminish or increase the importance of schooling in the economic fortunes of unskilled workers' offspring or, say, clerical employees' offspring?

B. Occupational Structures (2)

Educational requirements. An examination of the requirements (educational, experiential) for entry and promotion

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1) Debunking may have been once necessary where magical powers were accorded education as a way of democratising society. In some countries, a Weltschmerz is now emerging about education which supports the constriction of public expenditures and the punishment of disturbing students.

2) A recent conversation with John Goldthorpe strengthened my resolve that these occupational issues are important questions for students of social mobility. He is not responsible for these formulations.

into various positions in various nations would be instructive. Do certain nations characteristically have higher educational requirements? How did this come about? What functions do these requirements play?

Public policies. How do public policies (expenditures, growth, regulation) affect the number and kinds of jobs available in various societies? In the U.S.A., federal officials and others are discussing the desirability of manpower impact studies to parallel environmental impact requirements. What will be the effect of a governmental programme and expenditure on the demand for various kinds of labour? This information makes possible the consideration of how governmental action might be deliberately oriented toward affecting occupational demand.

Restructuring jobs and ladders. Do countries differ in the way particular tasks are combined into a job or occupation? What has influenced whatever changes have taken place in occupational structuring?

How does an individual move up the job ladder? What are the possibilities? What are the important crossover points? Where are crossover points needed?

C. Wage Differentials

Comparative wage differences. How do countries compare in wage differentials for similar occupations for quintiles of wage earners (which was Henle's approach)? What are the trends? A number of economists have written on this issue, as reported above, but knowing how to evaluate their results is difficult.

Effects of occupational structures. I understand that a study by economists at the University of Aix-en-Provence shows that the range of wage differentials for a similar family of jobs differs in France and Germany and that these differentials relate closely to the number of job classifications between the top and bottom of the job group. This result opens up the questions of how entrance and promotion requirements affect wage differentials, whether particular kinds of tasks always have a high wage return regardless of what occupations they are part of, and whether certain tasks are related to part-time work and lower income, etc.

The general issue is the relationship in various countries between the structuring of tasks and occupations and the structuring of income differences.

Microscopic analysis. In addition to broad statistical data, we need close inspection of wage trends in specific occupations and explanations of these trends in terms of specific events and processes.

Differentials and mobility. Income analysis and mobility analysis should be brought together. Pen correctly argues for the synthesis of the sociological model emphasising mobility with the economic model stressing income: "The synthesis ought to answer questions such as: if the vertical mobility (measured by this or that index) increases by one per cent what will the personal distribution (measured, for instance, by the Gini Concentration Ratio, the share of the top 10 per cent, or another criterion) do then? How will the income share of the bottom 20 per cent react to changes in mobility? We do not know what this integration of two models ought to look like. Not only has such an exercise never been performed - it has never been asked for yet" (1).

D. Goals of Equality

At least in the U.S.A., many discussions of goals and ideology are transposed into discussions of "facts" and "practicality". I have this distinct "déja vu" feeling when I read much of the literature on economic inequality - both at the level of data and of interpretation. The arguments are frequently not at the level of what the facts show but about how to interpret them and what measuring stick is to be used.

Many social reformers implicitly assume that they share common goals and standards with other reformers (and perhaps differ only on interpretation of this or that piece of data). My belief is that the differences in goals and standards are important, that they may lead to wide differences in policies, in urgency of action, and in political support.

Some argue that not specifying differences in outlook is desirable because a wide coalition of support for change can then emerge. Concentrating on differences in viewpoints fractures support. My own belief is that important structural changes do not squeeze through on the basis of ignorance; if they do, they are squashed when their results become clear (2).

Consequently, an important step is to have careful, systematic thought about the different goals which we subsume under "equality of opportunity" and "equality of conditions", and the different policy consequences of these goals.

To stimulate discussion, I list three equality of *condition* goals that I have observed: *representative equality*, where the concern is with who (blacks, women) actually gets high-level positions; *economic or resource equality*, where differences in the command over resources is the issue regardless of the characteristics of those at the top and bottom; *task equality*, where the concern is with the distribution over lifetimes of satisfying and unsatisfying tasks, not just income (3).

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1) Pen, *op.cit.*
2) The pragmatist's "foot-in-the-door" - get whatever you can and later build on it - competes with the skeptic's "stuck-door" - once a little change is achieved, partially through misleading supporters, further change is unlikely.
3) Miller, "Types of Equality", *op.cit.*

Task equality moves away from the emphasis on economic well-being towards other issues of psychic satisfactions, status and respect, political power. These are the kinds of issues that Professor Pen is raising in his comments on the Tinbergen paper.

But the concern can reside with different degrees of equality. For example, Slomczynski and Wesolowski argue that the concern should be to assure that no one is at the bottom of every distribution scheme - low in resources, work enjoyment, political power, etc. (1) Their goal is inconsistency among an individual's various statuses so that individuals do not have only top positions or bottom positions but various mixtures of the desirable and undesirable.

This is only one of many pictures of a more egalitarian situation. It would be useful to explicate the pictures in our minds. At least, then, what we are disagreeing about would become clearer.

Policy Recommendations

A. Changing Occupational Structures (2)

Occupational ladders. Federal manpower programmes in the U.S.A. have subsidised employers in developing steps by which low-ranking employees may move into higher-level positions. In hospitals, new occupational titles have been constructed to bridge the gap between the low-trained ward aide and the high-trained registered nurse. Procedures have been established so that teachers' helpers, through a combination of experience and education, can become full-fledged teachers. These examples are drawn from the health and education programmes, but similar, though fewer, programmes have been adopted in blue-collar situations. Incentives can be offered for increasing promotion within enterprises.

Through a variety of subsidies and sometimes pressure to have a fairer proportion of blacks and women at higher levels in the enterprise, it is possible to affect occupational distributions and to increase promotions. The result should be higher rates of mobility for manual offspring (3).

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1) K. Slomczynski and W. Wesolowski, "Reduction of Inequalities and Status Inconsistency", Eighth World Congress of Sociology, Toronto, August 1974.

2) I apologise for the provinciality of so many American examples. The U.S.A. is a nation which abounds in fads and experimentation but institutionalises little on a solid basis. The result is that many interesting ideas are easy to spot there, even if they are small-scale.

3) Taussig's point, made in a somewhat different context, is relevant here: "The historical experience ... does suggest, at a minimum, that income maintenance reform should not be viewed as a substitute for badly needed programmes to upgrade the labour market opportunities available to the poor blacks and other racial minority groups. Such programmes may require unprecedented government intervention in the operation of private labour markets if our society is to succeed in counteracting the forces that generate the present gross inequalities in the distribution of wealth. Michael Taussig, "Long-run Consequences of Income Maintenance Reform", in Kenneth E. Boulding and Martin Pfaff, eds., Redistribution to the Rich and Poor, Belmont, Calif.: Wadsworth Publishing Co., 1972, p.386.

Changing schooling. Within the OECD context, it is not necessary to talk about the possibilities of recurrent education. I want to make one point about it that is important in the mobility context. The strong possibility is that recurrent education will be moulded to adapt labour forces to the changing needs of enterprises. The goal of aiding those who are occupationally thwarted or immobile or who want more interesting tasks is likely to play a minor role unless the equality goal is accepted as the prime principle of recurrent education (1).

B. *Reducing Occupational Barriers*

Credentialism. In the Duke Power case, the U.S. Supreme Court has concluded that entrance tests for positions must be relevant to the occupation. Some barriers to mobility would be broken if employers and unions had to defend the requirements for entry and promotion in various occupations.

The general aim is to reduce monopolistic and discriminatory practices which bar people from gaining the more attractive positions. It is a policy of opening doors; the next policy helps push some people through those doors.

Affirmative action. Large employers in the U.S.A. have to evince their concern to employ blacks and women in higher-level positions by performance - actually increasing the percentage of these groups in these positions. While governmental programmes to monitor progress are under considerable attack for allegedly introducing repugnant quota systems, they have had some effect on improving the prospects of groups who had great difficulty in gaining admission to high-level positions (2). In law and medical schools, the percentage of students who are female or black has increased in a very short period because of governmental and public pressure. On the other hand, students of working-class origins have not improved very much their chances of gaining admission to medical schools.

It seems easier to deal with those who are occupationally blocked on the basis of ascriptive characteristics (e.g. French-Québec nativity) than more disadvantaged because of class origins. But since class and ethnicity are tied together, affirmative action can be important.

C. *Changing Economic Structure*

Professor Tinbergen has recommended activities that will lead to increased demand for unskilled labour. A more general point is involved here that is recognised in developing countries but not so much in richer nations: that is, *the composition of GNP affects income distribution and mobility opportunities.* Professor Pen is, of course, correct in pointing out the difficulties of making changes and the likelihood of side-effects, but we need to begin to think about economic policies of growth in

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1) See S.M. Miller and Francine Miller, "Equality and Recurrent Education", *New Human Services Review*, 1, 3, January 1975.
2) See S.M. Miller, "The Case for Positive Discrimination", *Social Policy*, November/December 1973, pp.65-71.

less aggregate terms and more specifically in terms of the kinds of growth desired with benefits for whom.

Conclusion

The original hypothesis - that manual sons have not improved their mobility opportunities relative to those of non-manual sons to maintain or improve theirs - has not been sustained. In some countries the hypothesis seems true; in others it is not. We are then in the difficult but interesting and important circumstance of explaining why it goes one way in one nation and another way in a different country. (Though all results should be taken with great caution and recognition that more and better understood data may overturn these findings).

Labour markets (internal and external) have been largely ignored in the study of the causes and patterns of intergenerational occupational mobility. The connections between them, schooling, social structure (e.g. ethnicity) and mobility should be key elements in research and in public policy formulation.

Techniques for the Analysis of Social Mobility

by

Nathan Keyfitz

In a pure caste society the son of a farmer is a farmer, the son of a sweeper is a sweeper, the son of a prince is a prince. Prediction of the fate of individuals is straightforward, and statistical analysis of groups leaves no unexplained variance. In practice no society follows caste lines exactly; ambitious individuals and groups do manage to learn Sanskrit or otherwise change their status, some technical change does occur, and fertility and mortality differentials produce, for example, more Brahmins than can be supported performing needed rites.

But it is with the advent of industrialisation that status, and mobility among statuses, become major preoccupations. On the one hand the progress of society as a whole enters as a new concept, and on the other hand their own prospects come vividly to the consciousness of individual members. These may be called the macro and micro aspects respectively of social mobility in an industrial society. The macro questions were raised by political economists who saw that an established class at the apex of the society had not the talent, and certainly not the incentive, to progress that a fluid leadership would have. At the individual level the freedom to rise to the work for which one was best suited accorded with the freedom to travel, to trade, and to think which became valued in the 18th century. People came to feel that it was wrong that one person at birth should be condemned to poverty while another was secure in wealth, and against this ethical innovation the only argument for inequality is a functional one: there must be incentives to develop and exercise needed qualities.

Yet no real society can be entirely open, just as none can be entirely closed by the barriers of caste. Children are born into families, and some are advantaged in their initial training, others disadvantaged. For perfect openness, in the sense of complete equality of opportunity, all children would have to be taken from their parents at birth and raised collectively like Plato's Guardians. Thus implementing the value of equal opportunity would violate other values, like the right of parents to raise their own children.

Fortunately scholars have not postponed empirical work until such difficult issues can be arbitrated. Linton (1936, p. 115) contrasted two ways of determining status--ascription and achievement:

> Ascribed statuses are those which are assigned to individuals without reference to their innate differences or abilities. They can be predicted and trained for from the moment of birth. The achieved statuses are, as a minimum, those requiring special qualities, although they are not necessarily limited to these. They are not assigned to individuals from birth but are left open to be filled through competition and individual effort.

The task is to see what mix of these applies in a real society. Even Linton's statement is too broad; he uses the terms in relation to many kinds of status that will not be of interest here--being a parent, a husband, etc. Our study is less value-free than Linton's, and we will be interested in ascription and achievement in relation to desirable and undesirable statuses. All the studies here described put a banker higher than a street sweeper.

How can we find in what degree occupational status is determined by a person's birth and to what extent is a consequence of his own actions taken freely? The ideal for an industrial society may be a pure achievement system, with no constraints deriving from the circumstances of birth or rearing, but since in the real world ascriptive elements are confounded with achieved ones, the scholar's task is to determine how much of each applies in a given society (Blau and Duncan, 1967, p. 163).

The procedure for finding out the relative strength of the two kinds of elements is to compare individual careers. The careers are summarized in statistical tables for convenience, but the unit of data consists in noting that A is at such and such a point in the occupational scale, that his father was at such and such a point, that A had so many years of schooling, and similar biographical facts. If in a random sample individuals of high status in more cases than not had high status fathers, this suggests a degree of ascription in the determination of status. Insofar as the statuses of individuals are not predictable by any of the variables existing at the time of their birth, at least the possibility of achievement exists. The absence of intergenerational mobility among recognizable groups is a measure of ascription--at the extreme of zero mobility is complete ascription.

Unresearchable Questions

Scholarly discussion concentrates on a small subset of the questions that can be asked about how individuals get along in the world. We must turn our backs on value conflicts such as that between equality of opportunity and the right of parents to raise their own children as well as they are in a position to do. Even relatively concrete descriptive variables that probably could be measured for individuals are beyond statistical treatment because they have not been measured. In industrial countries all statistically observed correlates of status together usually do not account for as much as one half of the variance of individual status. Explanation of mobility in terms of education and intelligence as measured by IQ tests, along with features of home upbringing, is the most that has been attempted.

These statistical variables are to be seen as embedded in a larger set. Determinants of where a person ends up in the status hierarchy include perseverance, appearance of intelligence and reliability, ingenuity of a kind not revealed in IQ tests, singleminded pursuit of objectives, capacity for judicious deception when this will advance the personal cause, initiative, ability to deal with people, and just being likable are a few items only of a very long list of unmeasured influences on mobility. Some of these constitute merit, which is to say, they contribute to production, while others do not; no one can sort them out, least of all this writer. How far they underlie, are manifested by, interact with, or correlate with the mobility causes that can be specified and measured is a question that will inevitably be raised in the interpretation of available data.

Kinds of Mobility

This text has nothing to say about spatial mobility--people moving from one place to another, within and between countries; we are here concerned only with social mobility--movement from one social position to another. That includes both the change of relative position of groups--Sanskritisation of castes in India, integration of blacks in the United States--and the rise or fall of individuals and families in the occupational scale. Rise or fall can take place in the lifetimes of persons, or between parents and children, which is to say that it can be intra- or inter-generational. Moreover there are many dimensions of position, of which class, status, and power, as distinguished by Weber, have been most commonly referred to. In general sociologists concentrate on status, economists on class as revealed by income, political scientists on power. Table 1 shows the resultant twelve kinds of social mobility as cells of a table.

A.H. Halsey (1974), to whom the above division is due, points out how uneven is knowledge in the twelve cells. A very large fraction of all studies fall in the cell indicated--they are concerned with status, deal with individuals, and emphasize father-son change. The present chapter will be no exception to this uneven coverage.

TABLE 1. Types of social mobility, after Halsey, locating the cell on which research has concentrated

	Inter-	Intra-
	generational	
Group	Class Status Power	Class Status Power
Individual	Class Status Power	Class Status Power

1. Summarizing the Biographies in Zero-Order Correlations

The technique that has produced most knowledge so far starts with the biographies, summarizes them by scaling occupations, education, natural intelligence, so that each individual is replaced by a few numbers representing his and his father's positions on the several scales, then calculates the correlations among pairs of scale positions. These correlations of pairs permit regression analysis, and in particular a special form in which the regression equations are a recursive set (Duncan, 1966).

If we have N biographies, obtained in summary form by interview, and if Y_i is the occupational scale position of the *i*th person and X_i is his father's position, then we start by putting both of these variables into standard measure, which is to say, we transform Y_i to

$$Y_i = \frac{Y_i - \overline{Y}}{\sigma_Y}, \text{ where } \overline{Y} = \frac{\Sigma Y_i}{N} \text{ and } \sigma_Y = \sqrt{\frac{\Sigma(Y_i - \overline{Y})^2}{N}}, \text{ and}$$

similarly for X_i. Then x_i and y_i both have zero means and unit variances, and the zero-order correlation between them, say r_{XY}, may be defined as the value that minimizes the sum of squared errors,

$$\sum(y_i - r_{XY}x_i)^2. \qquad (1.1)$$

This provides the "best" estimate $\hat{y}_i$ of y_i linearly from x_i: $\hat{y}_i = r_{XY}x_i$ in a least-square sense, the error for the ith individual being $y_i - \hat{y}_i = y_i - r_{XY}x_i$. Differentiating (1.1) with respect to r_{XY} provides $r_{XY} = \Sigma x_i y_i / N$, a coefficient of correlation that tells how close the relation between X and Y is, and also a regression coefficient that predicts Y from X. This procedure has a simple meaning only if Y and X are related linearly, and the scatter about the line of relationship is uniform for all values X_i.

On Blau's and Duncan's (1967, p. 169) data, obtained through their Occupational Change in a Generation survey, $r_{XY} = 0.405$. If one father is a standard deviation above another in occupational status, we expect the son of the first to be 0.405 above the son of the second.

Applying the prediction back to the members of the original sample will give a mean square error of $\frac{\Sigma(y_i - \hat{y}_i)^2}{N} = \frac{\Sigma(y_i - r_{XY}x_i)^2}{N} = 1 - r_{XY}^2$, since $\frac{\Sigma y_i^2}{N} = \frac{\Sigma y_i^2}{N} = 1$, and $\frac{\Sigma y_i x_i}{N} = r_{XY}$. Thus aside from being the coefficient of correlation and the regression coefficient, r_{xy} has a third interpretation: it tells us that $1 - r_{XY}^2$ of the variance of Y is unexplained by X and hence that r_{XY}^2 is explained. From Blau's and Duncan's data it can be said that Father's Status explains $(0.405)^2 = 0.16$ of the variance of respondent's Occupational Status. But Blau and Duncan are less interested in accounting for a large fraction of variance in status than they are in establishing more fully the causal mechanism by which status is determined, and r_{XY} is also a means to that important objective.

2. From Zero-order Correlations to Path Coefficients

Hence they bring in other variables simultaneously with Father's Status. If U_i is Years of Schooling, and is like X_i and Y_i put into standard measure, $u_i = \frac{U_i - \bar{U}}{\sigma_U}$, then the least-squares estimate $\hat{y}_i$ is obtained by minimizing the sum of squares

$$\sum (y_i - p_{YU.X}u_i - p_{YX.U}x_i)^2. \qquad (2.1)$$

To find the coefficients $p_{YU.X}$ and $p_{YX.U}$ that minimize this quantity, differentiate with respect to $p_{YU.X}$ and obtain the linear equation

$$\frac{\Sigma y_i u_i}{N} = p_{YU.X} + p_{YX.U} \frac{\Sigma x_i u_i}{N} ,$$

and with respect to $p_{YX.U}$ to obtain

$$\frac{\Sigma y_i x_i}{N} = p_{YU.X} \frac{\Sigma x_i u_i}{N} + p_{YX.U} ,$$

which are the same as

$$\begin{aligned} r_{YU} &= p_{YU.X} + p_{YX.U}r_{XU} , \\ r_{XU} &= p_{YU.X}r_{XU} + p_{YX.U} . \end{aligned} \qquad (2.2)$$

From the definitions it follows that $r_{XY} = r_{YX}$, a symmetry that does not apply to the path coefficients; $p_{XY.U}$ cannot equal $p_{YX.U}$ unless $r_{XU} = r_{YU}$, as follows from the solution to (2.2) given below as (2.3).

Note that these equations constitute a decomposition of the zero-order correlations. For example, the first says that r_{YU} interpreted as the gross effect of Education on Occupational Status, is equal to the direct effect, $p_{YU.X}$, plus the indirect effect through Father's Occupation. This is a special case of Duncan's "basic theorem of path analysis" (1966).

In general the correlation between the explicandum Y and the explaining variable U is equal to the direct effect of U on Y, which is the regression or path coefficient p_{YU} plus indirect effects through mediating variables; each mediating variable makes a contribution to the correlation equal to the regression of the explicandum on it times its correlation with the explaining variable. The proof is obtained by adding further variables in (2.1) and noting how these appear in (2.2), called the normal equations.

The solution of the simultaneous pair of linear equations (2.2) is

$$p_{YU.X} = \frac{r_{YU} - r_{YX}r_{UX}}{1 - r_{XU}^2},$$

$$p_{YX.U} = \frac{r_{YX} - r_{YU}r_{XU}}{1 - r_{XU}^2}, \qquad (2.3)$$

and these are known as partial regressions, often written $\beta_{YU.X}$ and $\beta_{YX.U}$, or path coefficients. We can drop any part of the subscript that is evident from the context and for example write $p_{YU.X}$ as p_{YU}, or simply as p.

From Blau and Duncan (p. 169) we have $r_{YU} = 0.596$ and $r_{XU} = 0.438$; these in (2.3) along with $r_{XY} = 0.405$ give tha path coefficients

$$p_{YU} = 0.518; \; p_{YX} = 0.178.$$

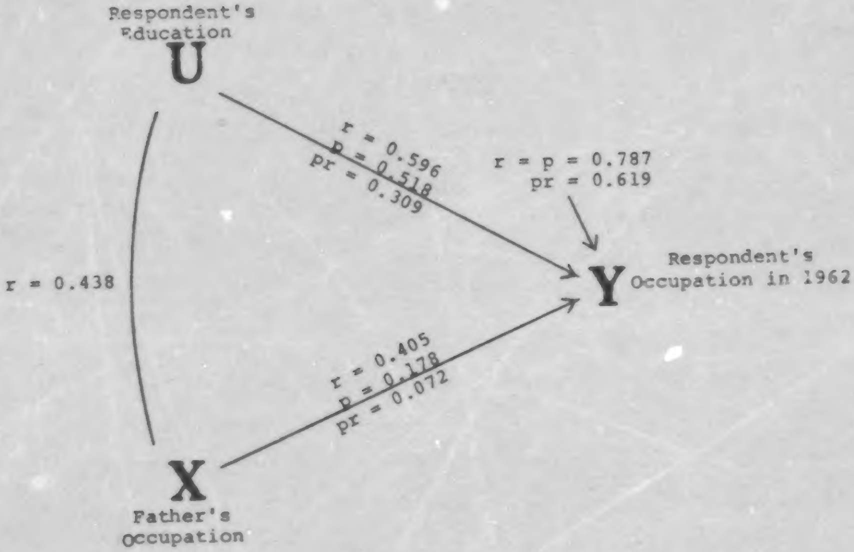
The path diagram that results is shown in Fig. I, whose arrows imply that the direction of causation is from Respondent's Education U to Occupation in 1962 Y, and from Father's Occupation X to Y. We do not try here to sort out the causes relating variables X and U. Respondent's Education could hardly have caused Father's Occupation, but the two could have had common causes; the model will be improved in the paragraphs that follow.

Despite its primitive character Fig. 1 does tell us something beyond what appears with the zero-order coefficients. The direct effect of Education as measured by p is nearly three times as important as Father's Occupation, while as measures by the zero-order coefficients r it is only half again as important.

Some Qualifications

To go on to say that "a rise of one standard deviation raises Y by 0.405," as the above might seem to imply on a hurried reading, is imprecise on several counts. After all, the data on which the statements rests are biographies of separate individuals. Accepting

Figure 1 *


Respondent's Education
U
r = 0.596
p = 0.518
pr = 0.309
r = p = 0.787
pr = 0.619
Respondent's Occupation in 1962
Y
r = 0.438
r = 0.405
p = 0.178
pr = 0.072
X
Father's Occupation

* Path diagrams with three variables, obtained from zero-order coefficients of correlation in Blau and Duncan (1967, p.169).

that X and Y are properly scaled, and that the observations fall in such a way that Y is a straight line function of X, that the Y's have the same scatter for any given X, and that the sample has been drawn for United States males with no appreciable bias and with the small error implied by its containing 21,000 individuals--even granting all this, we are still not doing an experiment, but comparing two groups of men, whose fathers are a standard deviation apart in occupational status. As among these two groups of men those with the higher-status fathers are estimated to average about 0.405 of a standard deviation higher in their own status.

Yet the above still puts the conclusion too strongly. It was respondents 20-64 years of age rather than their fathers who were chosen in a probability sample, and the time when the respondent was 16 years of age was the reference point for Father's Occupation. Hence the moment referred to for Father's Occupation was between 4 and 48 years ago. At the reference time the father could have been as young as 35 or older than 65. Hence, Father's Occupation mixes a 30-year range of points in individual careers with a 44-year range of calendar dates. Moreover, a father with many children would be more likely to be represented by some respondent, and we know that family size is correlated with the variables under analysis, especially occupational status.

But notwithstanding these difficulties and others brought forward by Blau and Duncan, no other data seem to provide a better base for causal inference than the Occupational Change in a Generation survey collected to their order by the Bureau of the Census.

3. Explained and Unexplained Variance

The variables X and U specified, between which the correlation is ascertained, represent only a part of the facts. How much of the variance of Y do they "explain"? The unexplained variance, which we call $1 - R^2_{Y(XU)}$, is given by the average of squares (2.1), and when this is minimized to meet the conditions (2.2) it takes a particularly simple form. Letting $d_i = y_i - p_{YU.X}u_i - p_{YX.U}x_i$ represent the deviation between the actual and predicted values of y_i, we can rewrite the sum of squares of equation (2.1) as

$$\sum(y_i d_i - p_{YU.X}u_i d_i - p_{YX.U}x_i d_i).$$

Using equations (2.2) and the fact that $\frac{\Sigma x_i^2}{N} = \frac{\Sigma u_i^2}{N} = 1$, we see that the last two terms in the above display vanish and we are left with $\Sigma y_i d_i$:

$$1 - R^2_{Y(XU)} = \frac{\Sigma y_i^2 - p_{YX.U}\Sigma y_i x_i - p_{YU.X}\Sigma y_i u_i}{N}$$

$$= 1 - p_{YX.U}r_{YX} - p_{YU.X}r_{YU},$$

or

$$R^2_{Y(XU)} = p_{YX.U}r_{YX} + p_{YU.X}r_{YU}. \qquad (3.1)$$

In words, (3.1) tells us that the fraction of variance explained in a multiple regression is the sum of the products of the path coefficients and the zero-order correlations. In Fig. 1 the $p_{YU}r_{YU} = (0.518)(0.596) = 0.309$, and the $p_{YX}r_{YX} = (0.178)(0.405) = 0.072$, which add to 0.381, the fraction of occupational variance explained.

A General Accounting System for Correlations and Variances

Equation (2.2) says that the total effect of Education U on Occupational Status Y is equal to the direct effect $p_{YU.X}$ plus the indirect effect $p_{YX.U}r_{XU}$. The indirect effect is found by going the circuit via X and multiplying the r of one arm by the p of the other. This is readily extended to several causes, say X, U, V, ..., acting on Y; the equation to be fitted would be

$$y_i = p_{YX.UV..}x_i + p_{YU.XV..}u_i + p_{YV.XU..}v_i + \cdots , \quad (3.2)$$

and minimizing the sum of squares with respect to $p_{YX.UV..}$ gives

$$r_{YX} = p_{YX} + p_{YU}r_{UX} + p_{YV}r_{VX} + \cdots . \quad (3.3)$$

This shows the effect of X on Y broken down into a direct effect, an effect via U, an effect via V, etc. (Fig. 2). Each indirect effect is the product of a p and an r; the indirect effect of X on Y via U is equal to the total correlation of X and U, times the direct effect of U on Y. Similarly for the effect of X on Y via V; it is the total correlation of X and V times the direct effect of V on Y. Moreover, nothing prevents further analysis of (3.3), breaking down each correlation so as to show explicitly correlations with anterior variables.

As a numerical example, the correlation r_{YX} with Father's Occupation includes a direct effect, $p_{YX} = 0.115$, plus an effect through Respondent's Education, $p_{YU}r_{UX} = (0.394)(0.438) = 0.172$, plus an effect through First Job, $p_{YW}r_{WX} = (0.281)(0.417) = 0.118$. The total r_{YX} is thus split into the three components

$$0.405 = 0.115 + 0.172 + 0.118,$$

in which the indirect effects of Father's Occupation are more important than the direct effects.

Even simpler than the formal rule governing correlations and path coefficients is that to account for the variance of any variable in the scheme. We obtained (3.1) by taking the sum of squares of the residuals and allowing for the least square condition by which the constants had been fitted. The process is perfectly general, and for three independent variables, say X, U, W, we would have

$$R^2_{Y(XUW)} = p_{YX}r_{YX} + p_{YU}r_{YU} + p_{YW}r_{YW} \cdot \qquad (3.4)$$

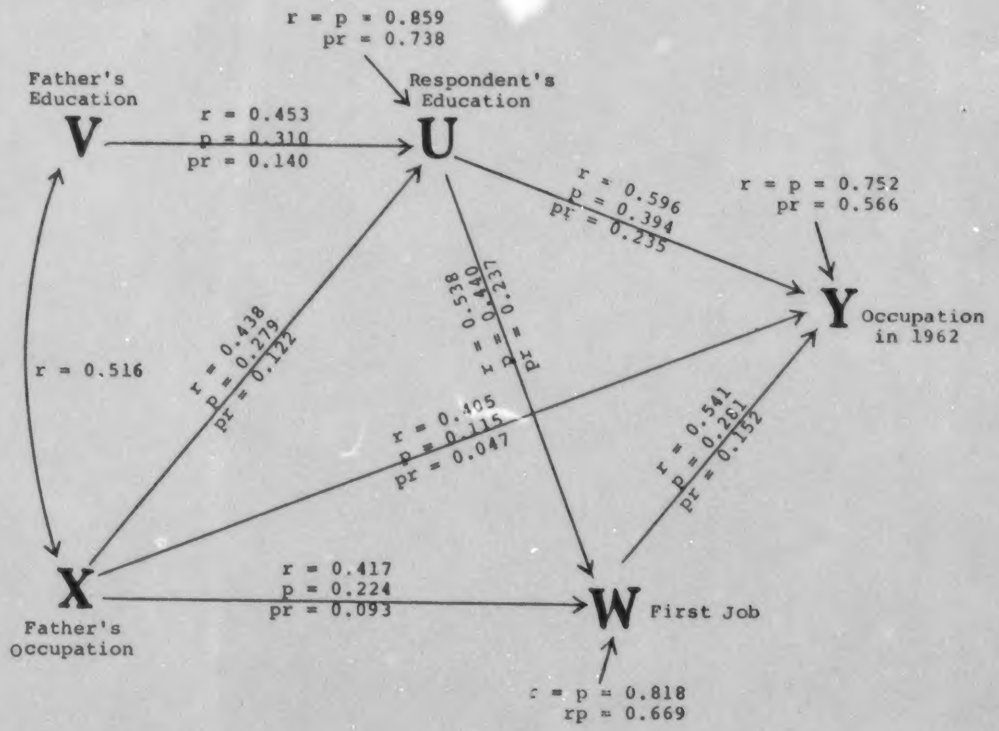
The variance explained by a number of lines converging at a point is equal to the sum of the products of the p's and r's. The unexplained variance is 1 minus this quantity and is represented by the arrows that have no source running into U, V and W in Fig. 2.

Ranges in Variance Accounting

Variance accounting is not as tidy as the above purely formal exposition makes it look. When a number of variables are acting on a dependent variable and all are intercorrelated, then in a basic sense the variance of observations obtained

Figure 2

The Basic Blau-Duncan Model


r = p = 0.859
pr = 0.738
Father's Education
V
Respondent's Education
U
r = 0.453
p = 0.310
pr = 0.140
r = 0.596
p = 0.394
pr = 0.235
r = p = 0.752
pr = 0.566
Y
Occupation in 1962
r = 0.516
r = 0.438
p = 0.279
pr = 0.122
r = 0.538
p = 0.440
pr = 0.237
r = 0.405
p = 0.115
pr = 0.047
r = 0.541
p = 0.261
pr = 0.152
X
Father's Occupation
r = 0.417
p = 0.224
pr = 0.093
W
First Job
r = p = 0.818
rp = 0.669

from a survey is unpartitionable. Some very strong assumptions are required to make the several terms of (3.4) represent the variance due to the several independent variables. The fact that the right-hand side of an equation is a summation gives no guarantee that its terms correspond to any particular set of causes. The data having been obtained by passive observation, the conclusions permissible with random allocation of the independent variable to individuals do not follow.

The right-hand side of (3.4) is the exact total of the variance explained by the three independent variables taken together, as follows from no other considerations than the definitions of the regression and correlation coefficients. To go from (3.4) to the assertion that the variance explained by X is $p_{YX}r_{YX}$, merely because X does not appear in the other terms, is improper, because X is implicitly involved through the partial regressions p; for the case of two independent variables we can enter in (3.1) the values given in (2.3) and find

$$R^2_{Y(XU)} = \frac{r^2_{YX} + r^2_{YU} - 2r_{YU}r_{XU}r_{YX}}{1 - r^2_{XU}} .$$

This shows how entangled are the explanatory variables X and U. Only if r_{XU} is zero do the two causes fall apart, and in that case r^2_{YX} of the variance of Y is explained by X and r^2_{YU} by U. In any other case the overlapping part of X and U presents a problem whose resolution would require other data of a different kind. The best that can be managed is a range for the possible effect of X and a range for the possible effect of U, which are readily derivable.

The regression of Y on X and U is

$$y_i = p_{YX.U}x_i + p_{YU.X}u_i + e_i \, .$$

Squaring and averaging gives for the explained fraction of the variance of Y

$$p_{YX}^2 + p_{YU}^2 + 2p_{YX}p_{YU}r_{XU} \, ,$$

if, as assumed throughout, the error is uncorrelated with the other independent variables. We are entitled to think of the first term as the pure effect of X, the second as the pure effect of U, and the third as the joint effect. This partitioning of the explained variance is not likely to give much satisfaction, however, when the three terms are of about the same order of magnitude.

With the data of Fig. 1 the partitioning of the variance of Y is

$$\begin{array}{ccccc} p_{YX}^2 & + & p_{YU}^2 & + & 2p_{YX}p_{YU}r_{XU} \\ 0.032 & + & 0.268 & + & 0.081 \end{array}$$

for a total explained variance of 0.381. The cheerless part of this is that if the joint effect is added to X, Father's Occupation, that variable accounts for 0.032 + 0.081 = 0.113, or more than three times as much as its direct part of the variance. All that can be said is that Father's Occupation accounts for between 0.032 and 0.113 of the total variance of

Occupation, and that U, Respondent's Education, accounts for between 0.268 and 0.349. The cheerful part of the story is that the lowest fraction for Education, 0.268, is well over twice as great as the highest fraction for Father's Occupation, 0.113. Thus a way is provided for drawing minimum conclusions from the model, based on ranges that have nothing to do with sampling variation, but only with intercorrelations of the explaining variables.

The more conventional way of partitioning among the explaining variables by (3.4) in effect splits the joint effect among them. In the simple case, based on Fig. 1. the limits for Education are 0.268 and 0.349; the value of $p_{YU}r_{YU}$ is 0.309, or very nearly the middle of the range.

Applying the same principles to Blau and Duncan's basic model, as given in Fig. 2, provides components of variance of Y according to the terms of (3.4) as the last column of numbers below, and the corresponding range as it comes out of the preceding argument. For Education, for example, the lower limit of the range is p_{YU}^2, and the upper limit is

$p_{YU}^2 + 2p_{YU}p_{YW}r_{UW} + 2p_{YX}p_{YU}r_{UX}$.

	Possible range		
Education U	0.155-0.314	$p_{YU}r_{YU}$	0.235
Father's Occupation X	0.013-0.079	$p_{YX}r_{YX}$	0.047
First Job W	0.079-0.224	$p_{YW}r_{YW}$	0.152
Other causes		$p_{YY}r_{YY}$	0.566
			1.000

If there were no joint effects we could say, using the right-hand column, that of the total effect 23.5 per cent was due to Education; that Education was more important than Father's Occupation and First Job together. But since joint effects do exist we are on safer ground to look at the column of possible ranges; then permit the assertion that Education and First Job both have more bearing than Father's Occupation, but they do not permit a judgment between Education and First Job.

The wide ranges that result from attributing the interactions to one variable or the other cannot be narrowed by larger samples. To narrow them one would have to vary the design of the investigation, somehow finding variables or combinations of independent variables less closely related to one another.

Standardized Variables

The purpose of developing the formulas in terms of standardized variables throughout this argument is simplicity in the derivations, plus ease in type-setting of formulas. In fact unstandardized variables are more suited to many applications. One might want to study two populations, identical in structure, which is to say determined by the same set of p's, but with one of the exogenous variables (those not caused within the system) subject to more variation in one population than in the other. To show the standard deviations explicitly is to separate out this difference between the two populations and leave them the same in other regards.

Analysis in terms of standardized variables certainly confounds structure and variation, since its p's contain its σ's.

Hence it is important to note that all of the formulas derived above can be translated back into terms of unstandardized variables. Since we defined y_i as $(Y_i - \overline{Y})/\sigma_Y$, and similarly for x_i, it follows that the coefficient of correlation $r_{XY} = x_i y_i / N$ can be written

$$r_{XY} = \frac{\sum (X_i - \overline{X})(Y_i - \overline{Y})}{N\sigma_X\sigma_Y} = \frac{\sigma_{XY}}{\sigma_X\sigma_Y}\ , \qquad (3.5)$$

and correspondingly for regression we would obtain

$$\beta_{YX} = \frac{\sigma_{YX}}{\sigma_X^2}\ , \qquad (3.6)$$

r_{XY} and β_{YX} no longer being the same. In this fashion all formulas can be made to show the standard deviation explicitly. The translation can equally well go half-way back to the original data by retaining departures from the mean but expressing those departures in terms of the units of original measurement rather than in units of σ_X, etc.

4. Reduced Form and Recursive Equations

The merit of path analysis is that is omits some of the linkages that are mechanically included in a multiple regression scheme. In Fig. 2, for example, no direct effect of Father's Education is shown on Respondent's Occupation in 1962, an omission based partly on empirical data and partly on *a priori* reasoning. Omissions based on temporal sequence are more readily justified, but in any case the willingness to omit some linkages is part of what is involved in going from standard multiple regression to structural analysis. Multiple regression has always been presented apologetically in relation to causation; the presentation has typically included the caution that "correlation does not prove causation," yet correlation is an acceptable item of evidence for causation; low correlation implies absence of causation unless a rare coincidence has occurred.

Regression has been extensively used for the past 50 years in physical, biological, and social science to "explain" one variable in terms of others. The variable x_1 is expressed in terms of x_2 , x_3 , ..., x_n , by fitting the equation

$$\hat{x}_1 = \beta_{12.34..}x_2 + \beta_{13.24..}x_3 + \cdots \qquad (4.1)$$

in such fashion that the sum of the squares of the departures of the calculated $\hat{x}_1$ from the observed x_1 is less than for any other set of β's. Each of the other variables could in principle be calculated in similar fashion, though in practice this is not done, yet n equations like (4.1) can at least be envisioned. The set of equations can be written in matrix form as

$$\begin{bmatrix} \hat{x}_1 \\ \hat{x}_2 \\ \hat{x}_3 \\ \vdots \end{bmatrix} = \begin{bmatrix} 0 & \beta_{12.34..} & \beta_{13.24..} & \cdots \\ \beta_{21.34..} & 0 & \beta_{23.14} & \cdots \\ \beta_{31.24..} & \beta_{32.14..} & 0 & \cdots \\ \vdots & \vdots & \vdots & \vdots \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ \vdots \end{bmatrix} . \qquad (4.2)$$

With most kinds of data the majority of the β's will be positive, and the conclusion will be that everything affects everything else; the causal structure is not brought out. If we have some a priori knowledge of that structure we ought to make it work for us.

If for example the elements x_n, x_{n-1}, ..., x_1 are in temporal sequence, we may form the hypothesis that x_n causes x_{n-1}, that x_{n-1} causes x_{n-2}, etc., and that no other causal connections exist. Such a temporal order is given by father's education, father's first occupation, father's occupation when son is 16 years of age, higher education of son, first job of son, ... On this basis all the β's in (4.2) would vanish except $\beta_{12.34..n}$, $\beta_{23.45..n}$, etc., which occupy the super-diagonal positions. The graph that would correspond to the matrix would be as shown in Fig. 3.

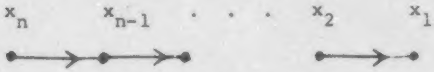


FIG. 3: Directed graph for a causal scheme in which each status affects the next following status and no other

On this model the β's would be zero-order correlations; we would suppose that of the variance of x_1 the fraction r_{12}^2 is accounted for by the variable x_2 and the remainder of the variance, $1 - r_{12}^2$, is due to extraneous causes, not included in the variables x_{21}, x_{31}, ..., x_n. Then x_1 and x_3

would be related by multiplying the simple regressions or correlations: $x_1 = r_{12}r_{23}x_3$, etc.

The superdiagonal matrix and the corresponding graph of Fig. 3 are the extreme simplification of causal mechanism; they suppose that each condition affects the one immediately following, and all other variation comes from outside the system. This contrasts with the graph that might be made of (4.2), in which each of the nodes is joined by a line, indeed by two lines, to every other node. We may well wonder whether some of the variables of (4.2) occur after other variables and so cannot affect them, even if we have no hope that a model as simple as Fig. 3 will prove realistic. Father's education affects father's occupational status; could it also directly affect son's education? This would seem to be an empirical question, to be settled by establishing the regression of son's education on father's, when father's occupation is held constant. Since the regression coefficient turns out to be 0.310, Blau and Duncan take it that there is a direct effect.

To go from the reduced forms (4.1) or (4.2) to the recursive form, in short to get rid of all coefficients below the diagonal, one makes use of *a priori* knowledge of the time sequence of the observations in question, and supposes that causation can only work forward in time. To further improve intelligibility by getting rid of some of the elements above the diagonal, one goes by the calculated regressions; Blau and Duncan find that father's education does not have a significant direct effect on son's status; Jencks (1972, p. 338) finds that education has no direct effect on income when occupation and IQ are held constant. Such a delicate combining of a priori and empirical considerations to ascertain a causal linkage is in the best scientific tradition.

Regressions and Structural Equations

The much qualified statements made earlier about the partition of variance fit with a regression approach to data, one in which the data alone are available to the investigator. The structural approach uses something more: it brings a prior theory of which variables are causes and which are effects--not necessarily prior to all data, but to the particular set of data under analysis. "In a structural equation model," says Goldberger (1973, p. 2), "each equation represents a causal link rather than a mere empirical association". Everything changes, and for the better as far as drawing practically useful conclusions is concerned, when one passes from regression to structural equations. Once the causal sequence is accepted the petty qualifications to which regression is subject can be dropped.

As an example of the difference between regression and structural coefficients, consider a model in which Z is the causal variable, and X measures it with an error:

$$X_i = Z_i + e_{i1} ,$$

where the mean of all variables is zero, and errors are uncorrelated with Z_i. We want to estimate the parameter β in

$$Y_i = \beta Z_i + e_{i2} ,$$

from data consisting of X_i and Y_i. Suppose we attempt this by regressing Y on X, using (3.6) to estimate β. The two quantities needed are σ_{XY} and σ_X^2, which, by squaring and averaging in the above structural equations, are seen to be $\beta\sigma_Z^2$ and $\sigma_Z^2 + \sigma_1^2$ respectively, where σ_1^2 is the variance of e_{i1}. Then the regression gives

$$Y = \frac{\sigma_{XY}X}{\sigma_X^2} = \frac{\beta\sigma_Z^2 X}{\sigma_Z^2 + \sigma_1^2} .$$

Thus instead of providing $Y = \beta X$ the estimation procedure includes an extraneous factor $\sigma_Z^2 / (\sigma_Z^2 + \sigma_1^2)$, which equals unity only if X measures Z without error. The result of the regression can be called a biased estimate of β or, as Goldberger (1973, p. 3) prefers, it can be called an unbiased estimate of $\beta\sigma_Z^2 / (\sigma_Z^2 + \sigma_1^2)$, which is not the parameter of interest. Goldberger goes on to other examples of common occurrence, including one in which two variables simultaneously determine one another, and one in which variables are omitted, in both of which regression produces something very different from an unbiased estimate of the structural parameters.

Once structural equations become the focus, attention shifts from partition of variance--which at most then concerns sampling questions--to having the right number of equations and exogenous variables to estimate the parameters, which is to say, the identification of the model. Those who take a skeptical view of models (in the sense of Hume, who argued that causes can never be known) and want to fit them as well as possible by traditional regression will continue to see the partition of variance as central. Those who consider that it is possible to develop and fit models incorporating genuine causation will focus on problems of identification.

In the contest between the two points of view the structural equation has the simplicity of fewer parameters varying in simpler ways. When a regression system is applied to a new situation in which one parameter is different from before, different estimates of all its parameters will appear; in a well worked out causal model one parameter can change without affecting the others. The causal model is more than an economical summary of the data; it claims to represent the underlying structure that produced the data. The claim of any particular structural model is checked by its capacity to represent very different sets of data with changes in only a few parameters.

Relation of Mobility Correlations to Status Correlations

So far our numbers have referred to statuses of occupation and education. But mobility as such pertains to change of status; it involves such questions as how much change in occupation between generations is associated with a given increase in years of schooling. If the excess of son's occupational status over father's is $y_i - x_i$, and the excess of son's education over father's is $u_i - v_i$, both still in standard measure, then the correlation between $y_i - x_i$ and $u_i - v_i$ may be expressed in terms of the six status correlations obtained from all combinations of x_i, y_i, u_i, and v_i. For

$$r_{(Y-X)(U-V)} = \frac{\sum(y_i - x_i)(u_i - v_i)}{\sqrt{\sum(y_i - x_i)^2}\sqrt{\sum(u_i - v_i)^2}}$$

$$= \frac{\sum(y_i u_i - x_i u_i - y_i v_i + x_i v_i)}{\sqrt{\sum(y_i^2 - 2x_i y_i + x_i^2)}\sqrt{\sum(u_i^2 - 2u_i v_i + v_i^2)}}$$

$$= \frac{r_{YU} - r_{XU} - r_{YV} + r_{XV}}{2\sqrt{1 - r_{XY}}\sqrt{1 - r_{UV}}} . \qquad (4.3)$$

Using their status correlations, Blau and Duncan find this to be 0.320 (p. 196) for non-farm males 25-64, and it is 0.308 for all males, as the reader may verify by entering the r's from Fig. 2 (along with $r_{YV} = 0.322$) in (4.3). "We conclude," they say, "that occupational mobility is not strongly related to educational mobility."

More Than Two Generations

A class society, in which the same families have high status generation after generation, would require a condition beyond medium high correlation between fathers and sons. Again in standard measure, we have for the respondent's status in terms of his father's,

$$y_i = r_{YX}x_i + e_i \,,$$

where e_i is an uncorrelated random variable of mean zero and variance $1 - r_{YX}^2$. Now consider a grandson, say of status z_i, and suppose the correlation r_{XY} holds for any pair of consecutive generations, and call it r, with departure e_i'. Then we have

$$\begin{aligned} z_i = ry_i + e_i &= r(rx_i + e_i) + e_i' \\ &= r^2x_i + re_i + e_i' \,, \end{aligned}$$

provided that the transmission proceeds linearly and independently in the two generations.

The correlation $\frac{\Sigma z_i x_i}{N}$ is equal to

$$r_{ZX} = \frac{\Sigma z_i x_i}{N} = \frac{\sum[(r^2x_i + re_i + e_i')x_i]}{N} = r^2 \,, \qquad (4.4)$$

if we assume the residuals are uncorrelated with status in the grandfather generation. If $r = 0.405$, as in the Blau and Duncan material cited earlier, then $r^2 = 0.16$, and this is the correlation between a man and his grandfather. Remember that the influence of a coefficient is measured by its square, and thus $(r^2)^2 = r^4$ is the part of a person's status that would be determined by his grandfather. With $r = 0.405$,

r^4 is only 0.0256 or about 2.5 per cent.

The successive-generation effect could be more substantial. Suppose that e_i and e'_i are correlated, so that when one is positive the other tends also to be, or else suppose that e'_i for father-son is correlated with x_i for grandfather. Then what works in the first generation continues to be effective in the second and later ones. The generation effects would thus be cumulative. Jacob Mincer tells me that data he has collected on three generations show that in fact transmission from father to son is very nearly independent of transmission from grandfather to father. The point is of extreme importance where a class society is under discussion; if successive inter-generational changes are independent then even correlations of 0.75 or higher between father and son are soon dissipated.

The choice of a method of analysis has methodological implications, as Herbert Blumer, Paul Lazarsfeld, S.M. Miller, and others have pointed out. If one performs regressions of status on status of father, on education of father, etc., for individuals, then only these can appear as the explaining variables. Insofar as status is determined by other considerations than have gone into the equations, that causation cannot show itself except in the form of unexplained variance.

A Macro-analysis

An alternative to the above correlation of individual characteristics is the study of the degree to which statuses are determined by aggregate facts. This complement to the work described above is due especially to Raymond Boudon.

Do educated individuals, by applying the knowledge gained in their education, create the jobs in which they will be located, or are the jobs in some sense present before their arrival, in fixed numbers, so that individuals can do no more than compete for those pre-existing boxes? Correlations of individuals cannot answer this, and comparisons of societies similar in respect of everything but education can hardly be envisaged let alone executed. If they could, the answer would be different in the short run and in the long run; perhaps for a number of years into their careers young persons have to compete for the existing higher status places which the training they have been given would have had no effect in expanding, but subsequently expansion of places does take place as a result of their presence.

Any predetermination of positions would help to account for some of the unexplained variance attributed above to unmeasured variables. Raymond Boudon provides a convincing numerical example, involving just two levels of education, high and low, and two of status, high and low. Given 200 persons of high educational level and 300 of low level, emerging from school at a given time and the same as one another in all other respects; 500 jobs await them. But only 80 jobs are of high status, 420 of low status.

The people can be fitted into the jobs in many ways, but the way that gives the highest correlation between education and status is

		Achieved Social Status		
		Low	High	Total
Level of Education	Low	300	0	300
	High	120	80	200
	Total	420	80	500

Now to find the regression of status on education in a fourfold table whose values are 0 and 1, and whose cells are a, b, c, and d:

		Status		
		0	1	
Education	0	a	b	a + b
	1	c	d	c + d
		a + c	b + d	N

The mean of education is $\frac{c + d}{N}$, of status $\frac{b + d}{N}$; the covariance is

$$\frac{(0)(0)a + (0)(1)b + (1)(0)c + (1)(1)d}{N} - \left(\frac{b + d}{N}\right)\left(\frac{c + d}{N}\right)$$

$$= \frac{ad - bc}{N^2} .$$

The variance of education is

$$\frac{(0^2)(a + b) + (1^2)(c + d)}{N} - \left(\frac{c + d}{N}\right)^2 = \frac{(a + b)(c + d)}{N^2}$$

and of status is $\frac{(a + c)(b + d)}{N^2}$. Hence the coefficient of correlation is

$$r = \frac{ad - bc}{\sqrt{(a + b)(c + d)(a + c)(b + d)}}$$

With the hypothetical data above this is

$$r = \frac{(300)(80) - (0)(120)}{\sqrt{(300)(200)(420)(80)}} = 0.53$$

The fraction of variance explained is the square of 0.53 or 0.29. There is no way in which the 80 high status jobs can be filled by the specified candidates that will explain a larger fraction.

This could be extended to more than two categories of education and more than two of status. With more categories the effect would be less striking, but some part of it would remain. When many qualified individuals try to fit themselves into a smaller number of posts, this fact will be translated in individual regressions as unexplained variance.

No one can say to what degree the large unexplained variance found in such studies is the result of unexplained variables pertaining to individuals (handsome appearance, high motivation, etc.) and to what extent to factors not attachable to individuals--luck, happening to have a job in a high-wage rather than a low-wage plant. Not only plant differences in wages, but regional differences would affect individual correlations in a national sample. All this is in addition to the variance resulting from the discrepancy between the statuses for which education has fitted people and the posts available. Much of Boudon's work concerns this last, the structural aspect, referring to the structure of the economy--no connection with the structural equations of causal analysis for individuals referred to above.

In a perfectly free market where education was priced high enough the discrepancy would not occur; an equilibrium would be reached at which the returns to individuals (in status and income) would be just equal to its cost. Where education is highly subsidized the demand for it will be in excess of the posts available. On an oversimplified model, if one half of the cost of a college education is paid by the state then young people will go to college in twice the numbers of jobs available, so that each has a 0.5 chance of getting a high status job.

A Further Way of Accounting for Low Correlation

Surprise and disappointment greeted the finding (Anderson, 1961; Coleman, 1966; Blau and Duncan, 1967; Jencks, 1972) that individual status and income were only to a small extent determined by education. Yet from another point of view this result is both natural and gratifying; indeed it measures the success of efforts to make schooling at all levels available to all.

When individuals (or their parents) pay substantial amounts for their schooling then this brings money returns like any other individual investment. Those few who can afford extensive schooling will obtain jobs that compensate them for the expenditure they have made. Once massive state support is provided to education more educated people will be produced, and individuals will no longer be able to capture all the returns from their own schooling. In the extreme case, if education became free (including compensation for the time and effort required to attain it) the individual could not capture any part of the return. The observed low correlations may simply be telling us that education has become readily available to those who want it, and that the numbers of these are sufficient to saturate the jobs available to educated people. Some evidence that this is occurring appears in wage and salary statistics, where manual wages are rising more quickly than non-manual.

This has nothing to do with whether completely free education would pay off for the community. On quite other grounds one supposes that it has great economic advantages of a collective nature--the income of the community would be higher than it would have been with less education. It would moreover pay off in the improved political judgment of the electorate; make individuals more interesting to themselves; enable them to read better books and newspapers. But none of this would be reflected in individual wages: the returns to occupations making the same demands on individual effort would be compensated equally, even though one required much more education.

Effect of New Entrants

The relative rise of blue-collar salaries cannot be attributed entirely to a saturation policy on education. One of the main additional causes must be the entry of women into non-manual jobs in the labour force. Women's liberation, along with the fall in fertility, are associated with higher labour force participation rates--which is cause and which effect is uncertain; do women enter the labour force because they have fewer children to look after, or do they reduce their births because they want to continue with jobs and careers? Whatever the cause the addition of women in subordinate white-collar occupations cannot but make for a relative lowering of average white-collar wages.

At the same time entry of any new group at the bottom of the scale raises the status of those already present. In any organization expanding rapidly enough to provide for ever-new recruits, everyone gains in status in a process limited only by external ceilings. Thus the immigrants into France and Germany during the period since World War II have helped the upward social mobility of native French and Germans, in a fashion that has been discussed in Sections 4. and 9. These new entrants--women and foreigners--have made up for the slow rate of natural increase and low death rates as far as mobility is concerned.

Choosing Among Hypotheses

Extremely varied hypotheses have been put forward on the underlying mechanisms relating education and status. Described without nuances, some of these may be placed on a continuum:

1. An elite inevitably passes power on to its children, and educating the children is a means of legitimating this transmission. As higher education becomes universal it loses the legitimating function, and other means have to be found to justify the biased transmission of power.

2. Education does genuinely qualify for higher posts, and its spread intensifies the competition for the limited number of such posts, a number determined without reference to education. In contrast to (1), the allocation is by merit, but merit, whether dependent on genes or on effort, is regarded as no stronger than any other justification of inequality.

3. Education has a genuine effect on the output of goods, but only collectively; once education becomes state supported individuals can no longer capture the benefits of their own education.

4. Education genuinely helps some individuals in their careers, and they do capture the benefit of it, at least in part, but only those from better-off homes can benefit from education. Schooling, one only of the influences on the capacities of individuals, interacts with home environment. Those from poor homes are not attracted into advanced schooling, and even if they are they do not learn much.

5. Education is freely open to all; it genuinely helps those who pass through it; its effects are independent of all other influences on the individual.

These viewpoints, regarded as hypotheses and presented with more subtlety than I have taken the space to develop, are one kind of starting point for educational research. One would like to use data to discriminate among them. From each a theoretical inference might be made of what the various correlations would be; checking the data to see which inferences are confirmed would be the base of choice. Thus hypothesis 1. would be expected to generate very high correlation between father's and son's status, as well as between schooling and status. Hypothesis 5. would show medium correlation between education and status and zero correlation between status of father and status of son.

Cohorts and Periods

The regressions here described attempt to explain the status of respondents at one particular moment in their careers, the moment when the inquiry was made. This can be regarded as a proxy for the average status over their lifetimes, since no one plans his education in order to be in a good position at exactly age 43 only, say. It may well be a satisfactory proxy for lifetime average status, but the point needs study, as Rogoff (1974) has pointed out. As in other cohort analysis the problem of data is serious; one must either follow individuals by periodic interviews during their careers, or ask them retrospective questions with resulting risk of inaccuracy. In either case the results appear only after the person has finished his career, and refer to long time intervals. Rogoff is undertaking a comparison of three distinct cohorts that will add a new dimension to fertility study.

As among cohorts some are favoured by being small and others handicapped by being large--those born in the 1930s versus those born in the 1950s in the United States are examples of these. For those that are comparatively small, upward mobility is easier, for those that are large it is more difficult. Regressions concerned with status at a given moment in which people of different ages are included could well be affected by this heterogeneity. That is why Blau and Duncan at one point sort their cross-sectional data by age.

Unscaled Data and Markov Processes

The work described up to this point depends on the scaling of all characteristics: occupations according to prestige, schooling according to years. But insofar as the analysis is concerned with non-comparable occupations and recognizes that one year of technical school may be more for some purposes than one year of college, less for other purposes, scaling will not be useful. The question then is where father's occupation puts a son; for each occupation of father one would like a probability distribution of occupations of sons.

Lipset and Bendix (1959) examined two-way tables from many parts of the world. Some they condensed by aggregating together all manual and all nonmanual occupations. Upward mobility may be defined as crossing the particular line that separates nonmanual from manual. Problems of definition abound--are surgeons and airline pilots manual or nonmanual? Lipset and Bendix realize that the line is arbitrary: that a move from skilled craft worker to office clerk need not be upward mobility, and that disregard of all movement within the two broad groups loses relevant data.

Notwithstanding these shortcomings the great variety of their sources provides convincing support for the generalization that "social mobility of societies becomes relatively high once their industrialization, and hence their economic expansion, reaches a certain level" (p. 13). The demand for skilled and white-collar labour with the advent of industrialization everywhere draws individuals upwards, and "the overall pattern of social mobility appears to be much the same in the ... various Western countries." Their evidence denies that the United States is mobile and Europe rigid, and if the two sides of the Atlantic resemble one another on the data of a quarter century ago the resemblance must be even closer today.

To extract the meaning of two-way mobility tables, showing for instance father's occupation by son's occupation, has been taken as a challenge by a number of writers. It is almost as though a rawer form of the data has to be compensated by a more sophisticated analysis. The intergenerational shifts of occupation are represented by a (possibly very large) transition matrix, say $\underset{\sim}{M}$, in which each column is the probability distribution of son's occupation for a given occupation of father. Let the initial vertical vector of fathers' occupations be $\underset{\sim}{P}_0$, of which the first element might be the number of professionals and top administrators, and the last be the number of unskilled manual labourers. Then if $\underset{\sim}{M}$ is appropriate to the transition of generations in question, the vertical vector of sons' occupations will be

$$\underset{\sim}{P}_1 = \underset{\sim}{M}\underset{\sim}{P}_0 \, . \qquad (4.5)$$

This way of looking at the matter was first introduced by Prais (1955) and applied to data published by Glass (1954). It is very general, being applicable within as well as between generations, and to geographical as well as to occupational mobility. Rogers (1968) uses this form for an extended treatment of migration. If the data provide the ratios of the transition matrix for a given period, then (4.5) is bound to be correct for the period, in the sense that $\underset{\sim}{P}_1$ will reproduce the final distribution. One hopes its use will transcend the period from which it was obtained, but this requires that the matrix $\underset{\sim}{M}$ be appropriate to transitions for subsequent intervals of time. If it is appropriate then the distribution in absolute numbers after 2 generations will be

$$\underset{\sim}{P}_2 = \underset{\sim}{M}\underset{\sim}{P}_1 = \underset{\sim}{M}(\underset{\sim}{M}\underset{\sim}{P}_0) = \underset{\sim}{M}^2\underset{\sim}{P}_0$$

by virtue of the associative property of matrix multiplication. By such steps it follows that

$$\underset{\sim}{P}_n = \underset{\sim}{M}^n\underset{\sim}{P}_0 \, , \qquad (4.5)$$

always provided that $\underset{\sim}{M}$ continues to be appropriate.

The elements of $\underset{\sim}{M}^{n}$, of which $m_{ij}^{(n)}$ is taken as typical, have a simple meaning in a stationary population and following one sex only: the probability that a person in the jth occupation has a descendant in the ith occupation exactly n generations later. With large n and mild restrictions on the fixed $\underset{\sim}{M}$, a stable condition ultimately appears. It answers the question, "What would be the ultimate occupation distribution if the transition $\underset{\sim}{M}$ continued to apply generation after generation?" That hypothetical ultimate condition turned out to be different from the initial condition in Prais' calculation, in that the proportion of semi-skilled manual labourers was larger. Implicit in the continuance of his M was a shift towards a larger proportion of semi-skilled manual labourers.

Prais goes on to decompose the transition matrix as observed into two factors, one of which represents the structural effects, say $\underset{\sim}{M}_{struct}$, and one of which represents pure mobility effects, say $\underset{\sim}{M}_{mob}$, in abstraction from the increase or decrease of high-level slots. Suppose that the initial distribution--occupations of fathers--is the vector $\underset{\sim}{S}_f$, and the occupations of sons $\underset{\sim}{S}_s$. Then the observations would fit the equation

$$\underset{\sim}{S}_s = \underset{\sim}{M}\underset{\sim}{S}_f = \underset{\sim}{M}_{struct}\underset{\sim}{M}_{mob}\underset{\sim}{S}_f .$$

To find the transition $\underset{\sim}{M}_{struct}$ for pure structural effects Prais takes the matrix that has the smallest elements that will carry the vector $\underset{\sim}{S}_f$ into $\underset{\sim}{S}_s$ Once this is available then pure mobility is obtained by division:

$$\underset{\sim}{M}_{mob} = \underset{\sim}{M}^{-1}_{struct}\underset{\sim}{M} . \qquad (4.6)$$

Difficulties and Improvements in the Transition Model

The Prais model is not without interest, but its meaning is far from clearcut when the transition matrix represents generational changes. For one thing the time reference is vague, since at any transition the son can be from 20 to 50 years younger than his father. Moreover, we need some rule to deal with varying sizes of family, especially since fertility is in fact related to occupation. In the face of such difficulties Duncan rejects the transition approach altogether, and simply takes father's status as one variable among others in an expression that explains son's status.

Independence of the several moves is required for (4.5) to be applicable. The Markov condition is that the transition from any stage depends only on the position at that stage and not on the previous history of the process. The question of independence of generations came up in the treatment of regression by (4.4). The volume of evidence on the correlation between transmission of status in successive intergenerational intervals is not yet as large as one would like.

The inappropriateness of the Markov assumption shows up in certain kinds of observations as too small numbers appearing in the diagonals of the powers of $\underset{\sim}{M}$. This suggests that in the real world failing to move once is associated with failing to move the next time. Blumen, Kogan, and McCarthy (1955) met this by supposing the population to be divided into two sorts of people, stayers and movers. The stayers never move, and the movers follow the Markov requirement of independence. If the fraction of stayers in the *i*th category is s_i, and the matrix $\underset{\sim}{S}$ has s_i in its *i*th diagonal position and zeros elsewhere, then the states after one transition would be

$$\underset{\sim}{P}_1 = (\underset{\sim}{S} + (\underset{\sim}{I} - \underset{\sim}{S})\underset{\sim}{M})\underset{\sim}{P}_0 \qquad (4.7)$$

where now $\underset{\sim}{M}$ applies only to movers. Because the stayers remain stayers through all moves and the movers taken by themselves enjoy the Markov property, after n intervals we would have

$$\underset{\sim}{P}_n = (\underset{\sim}{S} + (\underset{\sim}{I} - \underset{\sim}{S})\underset{\sim}{M}^n)\underset{\sim}{P}_0 \, . \qquad (4.8)$$

Applying this to quarterly records of the Social Security Administration, Blumen and his co-workers found remarkable agreement. Whereas the Markov model (4.5) showed after 8 quarters in a typical job-class (the third) only 0.176 still present, and the observed showed 0.461, the mover-stayer model showed 0.464, less than one per cent in error, and similarly for other cases in the diagonals.

Other variants have been numerous. Blumen *et al.* tried a scheme in which the movers did not stay movers throughout the entire course, but rather individuals fell into the mover and the stayer classes at random. McGinnis (1968) experimented with the "axiom of cumulative inertia" by which the longer the person stays in a given class the less likely he is to move. Tabah (1968) shows how the simple transition matrix among occupations can be extended to cover ages as well, and applies this to the study of labour force changes. Other models are reviewed in Bartholomew (1967) and Fararo (1973).

Vacancy Chains

White (1970) has ingeniously turned to a consideration of the positions among which people move, as well as the people who move among them, and so treats mobility in the systems framework in which it necessarily takes place in the real world. If A is initially in position a, B in position b, ..., and A retires, then usually an attempt will be made to fill the position a vacated by him. It may be that B will be promoted into a, and if this happens the vacancy in effect moves down to b. Presumably at some point in the successive movements that are triggered by the retirement of A a position will be abolished, or filled from outside the system, and the chain will then end. The concept is very widely applicable--to house occupancy, to finding taxis, to trading, and to many other kinds of matchings where there is approximately a one-to-one defining of persons and positions. The concept and techniques derived from it apply best to systems that are "tight", where there are somewhat more jobs than persons, so that a person moves quickly between jobs and jobs are often vacant for a time between incumbents.

Note that the method assumes that individuals do not create the slots into which they fall any more than they decide their own salaries. The structure of the society exists independently of individual wills. White's approach is uniquely capable of taking into account the constraints to which individual mobility is subject.

The Choice of Variables

This survey of the literature has emphasized methods of analysis rather than substantive results. It has sketched some potentially important work using transition matrices and vacancy chains. Meanwhile most of what we know about mobility is due to the combined scaling and structural equation approach, derived from surveys of individuals.

Variation among individuals in occupational level depends on ascribed and achieved characteristics, and regression can break down the variance between characteristics that may be classified as ascribed and those classifiable as achieved. The specified and measured variables account for over 40 per cent of the variance of occupational status in the work of Blau and Duncan, and about the same in Jencks (1972), whose calculations are only partly independent of theirs.

One problem that arises is whether the 40 per cent accounted for covers a representative sample of ascribed and achieved characteristics; lacking evidence on the unmeasured characteristics (like having an honest appearance, or being motivated to material success), one concentrates on the measured ones. If the unexplained variance were all due to ascribed factors, for instance to direct inheritance from parents, then the conclusions based on the explained variance would be overturned. This danger seems remote, since most ascribed factors would have already been taken into account in the status of father.

The second problem is how to apportion the measured characteristics to the categories of ascribed and achieved; we can safely call Father's Occupation and Father's Education ascribed as far as the respondent is concerned, but Respondent's Education is part ascribed and part achieved.

By and large the sample sizes used in mobility studies are substantial, so tests of significance are not important. But the tendency of variables to stick together, so that the conclusion puts emphasis on a less important one just because it is identified and measured, is a serious hazard. What from a purely statistical viewpoint is a mere misnaming of the variables is fatal from a policy viewpoint because it promotes a wrong strategy. The rich are also healthier, better schooled, burdened by fewer children; they live in more cultured homes, speak better, have more self-assurance, score higher on IQ tests, have better connections and so more facilities for finding jobs. Models to incorporate these variables are part of the agenda of future mobility analysis.

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On Social Stratification in a Temporal Framework

A Comment on Keyfitz

by

Nathalie Rogoff Ramsøy

The following remarks are concerned with one particular aspect of sociological theory and method in the analysis of social inequality. It seems to me that some of the most interesting recent advances consist of more adequate and clearer formulations of the time dimension, in several direct senses, of stratification analysis.

While not often made explicit, it seems to me that a temporal aspect is built into the sociological notion of social stratification as a general and comprehensive phenomenon, under which many observable "surface" forms of inequality may be subsumed.

For those sociologists whose views on social stratification are shaped by the ideas of Max Weber, the key concept is that of life chances. Here is a representative passage by a contemporary British sociologist who must be reckoned among the foremost developers of the Weberian theory of social stratification. In this paragraph, he argues for the strategic position of occupational status in such a theory:

> "The analysis of social stratification in terms of occupation is equally justifiable whether it is the causes or the consequences of the nature and distribution of occupations which are to be assessed. To explain the distribution of occupations is largely to explain the social inequalities found in industrial societies, and to explain its consequences is to explain how it is that these are modified or preserved. Occupations are the mechanism by which the influence of natural endowment, upbringing and education are translated into differences of wealth, power, and prestige, and the most significant moves which the individual can make in all three dimensions will be by means of a change from one occupation to another. Thus occupations are at once the most obvious symptom and the most effective predictor of differential location within the structure of social inequalities, whether considered in terms of income and economic Lebenschancen, or life-style, commensalism and endogamy, or autonomy and authority."

The most noteworthy features of Runciman's formulation are the following:

a) the emphasis on occupational differentiation as decidedly the most important source of social inequality;

b) the underlying conception of how social inequality takes many different types of concrete expression - inequality in access to power, patterns of exclusiveness in choice of friends or spouses, differential opportunities for attaining wealth or earning income - all of which have a common or at least a similar causal structure;

c) the primacy of the occupational distribution in this causal structure is due to its position as a crucial middle term between the human material of a society on the one hand and the diverse forms of reward on the other.

Note that in this conception, occupational distributions, organizations, and activities are not considered primarily as instrumental - as a set of social arrangements, based on a division of labour, for the purpose of producing goods and services. In the theory of social stratification, occupations are, on the one hand, institutionalised channels into which the members of society convert their talents and aspirations and which, indeed, transform such endowments from a "raw" into a "polished" state and, on the other hand, institutionalised channels for dealing out needed resources and sought-after rewards to the members of society.

It is certainly the case that a great deal of sociological research has used this conception of social stratification as a useful and appropriate paradigm. It is the basis for the conventional, standardised "breakdowns" or "demographic background variables" we have all become used to seeing in the presentation of the results of public opinion polls and other types of sample surveys. It is a simple extension of the paradigm that attitudes, interests, and choices of life style and consumption patterns, will also largely be determined by "differential location within the structure of social inequalities".

On the other hand, until recently there was far less research dealing with assertions such as "occupations...are the most effective predictor of... income and economic Lebenschancen...". More generally, there has been a need for a general framework for interpreting empirical relationships among socio-economic variables.

It is for its contribution to this task that the work of O.D. Duncan and colleagues, so well reviewed by Keyfitz, deserves special recognition. As Keyfitz has put it, the keynote of the Duncan paradigm is that it uses the biography or the life cycle as the framework for data collection, measurement, and analysis of social stratification. It is worth dwelling on this point, because it has many interesting implications, and continuities with other types of social research.

Another term for the biographical framework is that of the life history, and this is a well established method in the human sciences. The life history as a tool of investigation is at the core of psychoanalysis, is indispensable in clinical medicine and developmental psychology, has a firm place in the methods of anthropologists, and is far from unknown in sociology. But in this sense, the life history has referred to a single case, the method being to place given facts, episodes, or events in the life of a person, in a wider biographical context for that person. The only exception in the above list is that of developmental psychology, where observations of large samples of infants and young children have been made in order to derive average growth curves, relating chronological age to the development of a wide variety of physiological and mental capacities. With the same exception, life histories of this type have been collected retrospectively. Still another important way of classifying life histories refers to how structured they are, that is, how free the respondent is to include and exclude material.

In recent decades, a number of life history studies, which differ in several respects from the above, have been carried out. Some have been more strictly focussed on particular types of events - fertility histories, migration histories, occupational histories. Some have been prospective, rather than retrospective, following up the same individuals over shorter or longer time spans. These too vary in how narrow or broad a scope of events they cover - following individuals through a political election campaign to find out how they decide on which party to vote for, versus, for example, following a sample from their birth in 1946 to the present and collecting a great variety of information - medical, social, psychological, educational, occupational, etc. Finally, while all of the types of life histories mentioned thus far have involved direct interviewing or observation of individuals, the first few examples of culling databanks for biographical information have already appeared, and more will surely follow.

Now it is most unlikely that Blau and Duncan placed their own study in this very broad tradition at the onset of their work. But it has become more apparent with time. Duncan now speaks of "the socio-economic life cycle" and, in a programmatic statement, suggests that other types of life cycles be investigated - health life cycles, marital and family life cycles, and so on. That this was clearly not in Blau and Duncan's minds should in fact be evident from a minor flaw in the design of their study. The sample which they studied consisted of a representative cross-section of males aged 20-64. These were questioned about their social origins and backgrounds, their education, and their first job and their occupation and income at the time they were interviewed. The difficulty arises in analysing the part played by what perhaps seems like a simple, straightforward variable: namely, age.

In the life history or the life cycle, age is an intrinsic part of the story one is trying to tell; in some cases its relevance is to psychological development, in others to the social position of given age statuses, in still others to cultural prescriptions of the behaviour considered appropriate at particular ages. How then, can one study characteristic features of the life cycle per se, the socio-economic life cycle, for example, if one gathers retrospective data from men ranging in age from 20 to 64? In fact, one cannot do so in unequivocal fashion, if one hops over all of the intervening years between becoming economically active (first job) and the time of the interview. Note that "first job" is a life cycle concept - it is an event specified by reference to the context of an individual biography, but "present job" is not a life cycle concept, since it is defined with reference to calendar time, no matter where that puts individuals in the life cycle. In fact, where the model discussed by Keyfitz is used by Blau and Duncan, no data are reported for men aged 20-25, for many of whom "first job", let alone present job was an event that had not yet taken place.

So we are forced to introduce one further distinction in this already long list: that between age, as a cross-sectional variable at a particular point in calendar time, and age as a life cycle variable - and this leads inevitably to the concept of the cohort, or the age class, of persons who moved through the life cycle in the same span of calendar time. When cohorts are introduced by Blau and Duncan into their model they admit readily the inadequacies of their data, as they leave behind the variables which can be placed in a life cycle context - father's occupation when son was aged 16, own education, first job - and move on to the perilous "present job". They stratified their sample into four 10-year age cohorts and compared correlations among the life cycle variables for each cohort, in order to see if there were any *historical trends* in these correlations. But it was not possible for them to raise the same strategic problem with regard to such non-life cycle variables as present job or income. They note: "When we turn to correlations involving respondent's occupational status in 1962 (Y), the interpretation of intercohort differences as a historical time series is no longer legitimate. The cohorts, observed as a cross-section of age groups in 1962, differed in length of working experience and in time elapsed since leaving their families of orientation. Effects of these differences are inextricably mixed with any differences due to the periods at which the cohorts initiated their careers." (Blau and Duncan).

Still another difficulty arose in applying the particular type of causal analysis to the Blau and Duncan data. The use of path coefficients in their work is somewhat dependent on being able to specify an unambiguous *time sequence* of events, so that one can avoid the pitfall of imputing later events as the "cause" of preceding events. Inevitably, one has to ride herd over what appear to be atypical life histories, where people do things in the "wrong" order. In the Duncan model, it is for example assumed that people complete their education prior to going to work. In this sense, the arrow in the structure of causal paths goes unambiguously from education to occupation. Yet it is reported that as many as one-eighth of the sample did not conform to this assumption of a fixed behavioural sequence. Here, the authors admit that they have to resign. "Despite the strong probability that the U-W sequence is reversed for an appreciable minority of respondents, we have hardly any alternative to the assumption made here." (Blau and Duncan).

These are clearly after-the-fact observations and ones that could not have been formulated so explicitly had not the Duncan paradigm been so well constructed in the first place.

In the Duncan model, there is no global measure of "social mobility", in the form of a summary index of the frequency or amount of movement from father's to son's social position. Social mobility has been replaced by what is called the "achievement process", and this in turn is characterised by the strength of the bonds between the various links in the process. The sizes of the various path coefficients in the diagram characterising the socio-economic life cycle, represent the final output of the Duncan model.

As Keyfitz has pointed out, Duncan's use of regression coefficients to characterise the essential feature of the socio-economic life cycle, derives from his working with scaled variables. If statuses are defined only in nominal, unsealed form, then another kind of mathematical language, that of matrices, is appropriate. And Keyfitz suggests that matrix models could be developed within the temporal and causal framework of the Duncan paradigm, by constructing transition matrices for describing "movement" from, let us say, the family of origin to various types of levels of educational achievement, and so on.

It is in this connection apposite to review the recent work of Raymond Boudon, for he has taken on just this task. However, Boudon's model is not stochastic, but on the contrary a fully deterministic one. (Boudon 1974)

In the first chapter of his book, Boudon gives a highly telescoped version of all of the problems he later takes up. At the same time, he presents his special method of work: the development of models of a fictitious society, in which certain rather strict "rules of the game" are observed and in which the players' behaviour is governed by a few other simple restrictions, notably how many players there are of different types and how many places are available to them in the spheres where the game is played. As with most games, Boudon's are competitive and individualistic: no allowance is made for the formation of alliances or coalitions.

The first application of the method concerns equality of educational opportunity. Boudon's model refers to a fictitious society only in the sense that it does not correspond to any particular society, but is rather a synthesis of the current situation in the non-socialist industrial societies of the West. Specifically, Boudon extracts the following conditions from the far more complex state of affairs in these societies: families have positions in the stratification order; to each position there is associated a particular probability that children in such families will do well (or poorly) in compulsory school; to each combination of social position and level of success in compulsory school, there is associated a given probability of remaining in the educational system after the completion of compulsory school; each of these probabilities of remaining in school will operate not just once, but as often as there occurs a branching point in the educational system, where young people decide either to continue in school or to leave.

Boudon then proceeds to assign numbers to the various elements of his model: the number of positions in the stratification system, the number of families in each position, the probabilities associated with success or failure in compulsory school for young people from each social position, the probabilities for each socio-academic category of remaining in school, and the number of branching points in the educational system at which the decision to remain in school is taken. Once all of these numbers are assigned, it is a simple matter to make the model "move" from its original state, which consists of the distribution of young people according to social origins and level of success in compulsory school, to its final state, which corresponds to the distribution of the same set of young people according to social origins and the level of education they complete, varying from no further schooling to university graduation.

Boudon has been able to make use of a great amount of empirical research based on what he calls school "housekeeping" studies, as the source of the numbers he has put into his model. While schools have always kept records on their pupils, for both administrative and pedagogical purposes, in recent years record-keeping has taken on new perspectives as it has been adapted to research and planning purposes. The most important feature of educational record-keeping today is the gradually improving co-ordination of information which was formerly scattered in separate schools or separate school systems, into larger and larger pools of information covering all pupils in all schools. Furthermore, school record-keeping is now becoming connected with population registers or other means of making estimates of the size of the population of a given age. Finally, the records are now kept regularly, so that new information is continuously fed into them. As a result, it is now possible to envisage tracing successive cohorts - defined as all of those born in a given year, or entering school in a given year, or leaving compulsory school in a given year - as they move through the often complex maze of further courses, schools, diplomas, and the like. Thus far, no large-scale investigation of such movement by an entire age cohort, and based on educational records, has been carried out. But small pieces of the entire process have been studied and the status of our knowledge of the subject today is much like that of a partially solved jig-saw puzzle. Boudon has used his imagination and simple mathematics to fill in the missing pieces, and developed a model which is more or less compatible with what is known and of value because it can provide a set of useful tools for making hypothetical experiments without having to manipulate the "real world".

Boudon carries out one such experiment. He asks: what would happen if children were uniformly distributed with respect to relative level of success or failure in compulsory school, no matter what their social origins? Because of the rules of the game he has proposed, Boudon demonstates that this would have only a minor effect on the level of further education achieved. The latter would still vary to a great degree according to social origins, because every time the young people in a cohort came to a branching point in the school system, the proportion remaining would be the greater, the more socially advantaged the family of origin. The repeated workings of these unlike propensities is, in Boudon's model, the major source of inequality of educational opportunity.

In his next argument, Boudon takes up the question of the experiences of later cohorts of young people, living in a world which is much like that of the first cohort, but one in which the propensities to remain in school at the various branching points in the educational system, gradually increase with the passage of time. They increase for each successive cohort by 10% of the difference between the initial probability and a probability of 1. Note that this implies a far larger increase for those initially least likely than for those most likely to remain in school; an initial probability of .85 would go up to .89 after three successive 10% increases, while an initial probability of .20 would be raised to .42 after three successive 10% increases.

But if all of the other features of the model remain the same, most of the gains in equality of predispositions from one cohort to the next are eroded by the exponential form which the model takes. That is, of a given cohort from diverse social origins the proportions still continuing their education will diverge more and more from one another at each branching point in the school system. Boudon has, in this respect, elegantly distinguished between historical changes affecting successive cohorts in the population, and life cycle effects working on a given cohort as it moves through a sequence of statuses.

Boudon's conclusions concerning inequality of educational opportunity derive directly from the main features of his model: on the whole, most of the source of such inequality lies outside of the educational system, and is to be found in the stratification order of society. In this sense, the first part of the book is in no way counter-intuitive, there being relatively little cognitive distance between the way the model is constructed and the effects it produces once it is made to operate.

In the next section, Boudon takes cohorts of youth beyond the educational systems and into the occupational and class system. Their social origins and their level of education are now what determine the position they will assume in the adult socio-economic sphere. Again, there are restrictions imposed by virtue of the number of persons with given qualifications who will be competing for a specified number of positions. He specifies two rules of the game by which recruits move into adult positions: a meritocratic principle, by which all who have achieved a given educational level are treated equally, and a dominance principle, by which those of more prestigeful social origins are favoured. In the simulations of the model reported by Boudon, he first allows only the meritocratic principle to operate, and then allows it to interact with the dominance principle so that those of the highest education level and the most favoured social origins are treated most preferentially, followed by those of the highest educational level and the next most favoured social origins, and so on.

Once again, Boudon makes his model of inequality of social opportunity, as he calls it, move from its initial state to its final state, in which all members of the cohort have moved out of the educational system and into positions as adult members of society with places in the stratification order. He does this for all of the successive cohorts generated earlier, each characterised by a higher average educational level than its predecessor.

The same may be said of Boudon's final model, in which he links up the beginning point of his first model - the social origins of a cohort - with the end point of his last - the social destinations of the cohort - thereby producing a model of intergenerational social mobility. By running out the model for a succession of cohorts, each with greater equality of educational opportunity, and higher educational levels than its predecessor, he can experiment with the effects of such structural changes on intergenerational mobility. The changes in mobility will be an outcome of the way in which the upward shift of the educational distribution interacts with (a) unchanging marginal distributions, i.e., number of "places available" in each position in the stratification system, and (b) unchanging rules of the game by which available places are distributed. These interactions tend on the whole to produce only small and irregular changes in intergenerational mobility.

Much will be made of the genuine differences between Duncan's and Boudon's work - not least by the authors themselves. Let me therefore emphasize three points of convergence.

- First, both have chosen to describe stratification processes in a temporal framework in the double sense specified above - calendar and life cycle time - and therefore both find it natural to trace the successive statuses of cohorts.

- Second, both have attempted to catch up the tension between liberating and constraining forces affecting individuals relative to the system of social stratification. In Duncan's model, the relevant terms are achievement and ascription, in Boudon's, they are his meritocratic and dominance principles.

- Third, both have, perhaps inadvertently, devoted most of their analytic effort to the early phases of the life cycle. To be sure, Duncan's full scale model makes allowance for what he calls career contingencies, and these are examined in one chapter of the most recent work by Duncan and his colleagues (Duncan et.al., 1972). Nonetheless, in both theories only families and schools - the two determining environments of childhood and youth - are visible as the stages on which the socio-economic life cycle is acted out.

These parallels have become apparent to my colleagues and me in the course of our work on a not unrelated study, The Norweigian Life History Study. (Rogoff Ramsøy 1972, 1973, 1974, Skrede, 1974). Our research design is that of a retrospective life history, collected from representative samples of three single-year cohorts of males interviewed when they were 30, 40, or 50 years of age. We have covered various sequences of activities and statuses - family life, education, migration, jobs, industry, earnings, and so on - in principle continuously (in practice the briefest time unit noted was one month) from the time the men reached 14 years of age until the time they were interviewed. This enables us to conduct an analysis of equality of opportunity, of achievement, and of distribution of life chances very much within the temporal and causal framework of the Duncan model, as well as to try to estimate coefficients of the types of parameters suggested by Boudon.

However, we are exploring the same research design for new possibilities. One of these has certain resemblances to still another sociological method, namely that of the time budget. Valuable insights into social conditions have been obtained from observing how people spend their time in the course of a day or a week. Life history data may be viewed as a time budget writ large, a kind of over-view of how people spend their lives. To be sure, if we simply aggregate the whole life span into one great bloc of time, then we foreclose all possibility of making use of the sequential aspect of the data for causal analysis. Used judiciously, however, it provides interesting leads with respect to equality and inequality in society. The following examples may persuade others as they are beginning to persuade us.

The first example concerns the relationship between socio-economic status of father's occupation and the men's own educational level. However, educational level is not a fixed status, we have observed. In each cohort, there were men taking some kind of course of study as late as at the time of the interview. To be sure, they were few of these among the fifty-year-olds. The general picture is given in tabular form below (see Table 1) showing the average length of post-compulsory schooling at five year intervals from the age of twenty to the time of the interview in 1971, according to father's occupational status.

Table 1

Mean Duration (in Months) of Educational Attainment above the Compulsory Level of the End of Selected Calendar Years, According to Socio-Economic Status of Father's Occupation

Calendar Year and Age Cohort	Socio-Economic Status					
	I (high)	II	III	IV	Father's occupation not reported V	Father not main provider VI
a) Age Cohort 1921						
1941	39.0	26.0	8.1	5.3	9.9	9.4
1946	55.5	32.9	11.5	7.3	13.8	12.5
1951	62.4	36.9	13.1	8.4	14.7	15.0
1956	64.0	38.3	13.9	8.8	16.3	15.6
1961	65.5	39.2	14.2	9.2	16.6	15.8
1966	66.3	39.7	14.6	9.6	16.6	16.0
1971	66.5	39.8	14.9	9.8	17.3	16.0
(n)	(81)	(177)	(627)	(392)	(12)	(33)
b) Age Cohort 1931						
1951	42.3	32.1	13.0	9.1	21.6	12.0
1956	62.5	42.2	17.4	11.7	28.7	13.2
1961	68.2	44.1	18.9	13.3	30.8	14.8
1966	69.2	45.3	19.8	14.1	30.8	15.7
1971	69.9	45.9	20.1	14.4	31.3	16.0
(n)	(82)	(135)	(491)	(348)	(18)	(20)
c) Age Cohort 1941						
1961	49.3	38.2	20.6	17.2	31.3	16.7
1966	70.7	51.8	27.3	22.6	43.9	20.9
1971	75.2	56.2	29.3	24.6	46.0	23.1
(n)	(79)	(116)	(496)	(307)	(18)	(38)

These are cumulative figures, showing how men added on additional months of education to what they had acquired by the age of twenty. For example, in the oldest cohort, the men from the most favourable category of socio-economic origins had acquired 39.0 months of schooling, or three-and-one-quarter years, on the average, by the time they were twenty, in contrast to the average of less than half a year of post-primary schooling for men from the lowest category of social origins. Thirty years later, the former had accumulated in all over 6½ years of education, on the average, while the latter had added on only a few more months and had no more than 9.8 months in all.

While gains in education occur throughout all periods of the life cycle observed in our study, most of the accumulation occurs in the earlier periods. A rather different pattern characterizes the distribution over the life cycle of periods of illness or injury, serious enough to result in withdrawal from work or school for at least a month. These are shown in Table 2.

Even by the age of fifty, the men have not, on the average, accumulated lengthy illness histories - no more than a total of a third of a year over a long life span. (However, these are self-reports, subject to faulty memory and other forms of bias. Moreover, in a sample survey, based on voluntary interviews, the non-respondents almost certainly have more serious medical histories than the respondents.) There are the expected differences by socio-economic origins. Note, in fact, that the men in the youngest cohort have already accumulated more months of illness or injury, if they come from the least favourable social origins, than the men twenty years their senior from the most favourable origins.

These examples concern single aspects of the life histories - education and illness - respectively. Something closer to the time budget over the life span is illustrated in Figure 1, based on a scheme developed to classify the major activity in which each man was engaged for each month of the time span covered in the interview. The classification scheme is admittedly ad hoc. We began with the two core activities of going to school and being gainfully employed, and added others such as being an unpaid family worker, being unemployed, ill, on an extended vacation, in compulsory military service, and so on. Figure 1 shows the per cent of man-months devoted to each major activity for each of the thirty-six years covered in the interviews with the men in the oldest age cohort. The profile of activities is an excellent illustration of the life cycle concept, per se. As fourteen-year-olds most of the men were either in school, working for their families, doing odd jobs, or at work. The proportion of time devoted to each of these activities gradually shifts, the first two decreasing, the last increasing. We hope to develop methods of analysing these shifting activity profiles, and to apply these to the study of social stratification and inequality.

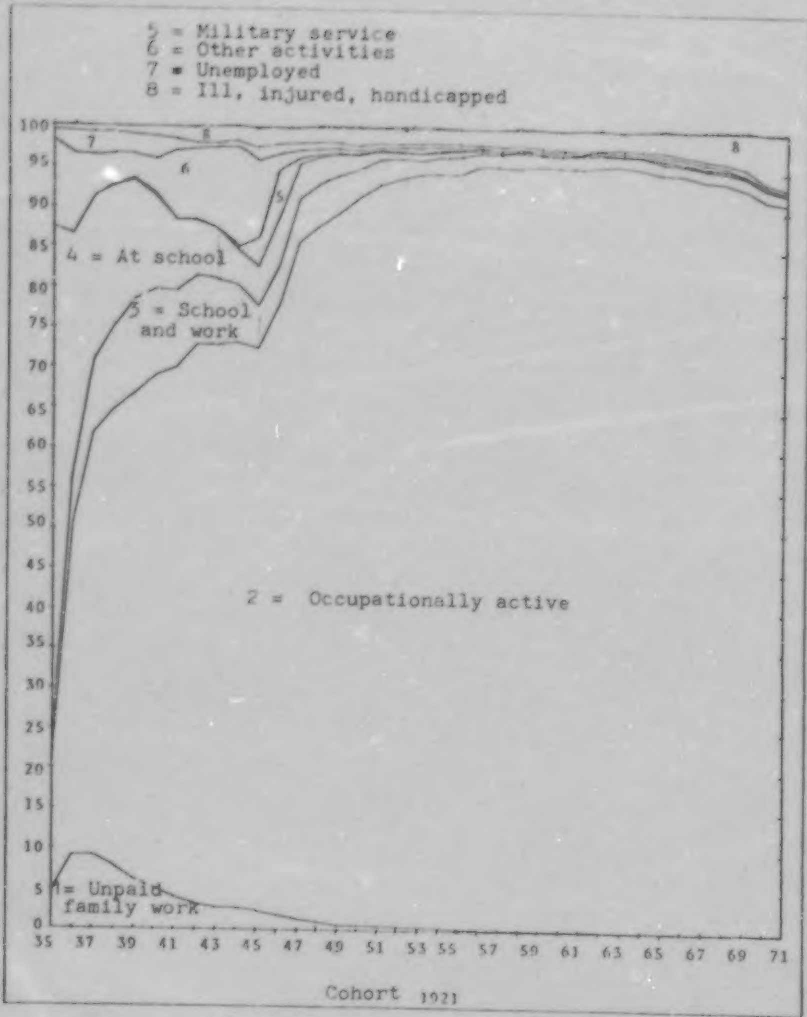
Table 2

Mean Accumulated Duration of Illnesses (in Months) at the End of Selected Calendar Years, According to Socio-Economic Status of Father's Occupation

Corrected Values

	I	II	III	IV	V	VI
a) Age Cohort 1921						
1941	.2	.8	1.1	1.1	2.9	1.6
1946	.5	1.5	1.7	1.7	3.0	2.3
1951	.8	2.1	2.2	2.2	3.3	2.3
1956	.8	2.6	2.7	2.7	3.3	3.7
1961	1.0	3.2	3.4	3.2	3.3	4.3
1966	1.5	3.9	4.1	3.8	4.2	5.1
1971	1.6	4.4	4.7	4.2	5.2	5.3
(n)	(81)	(177)	(627)	(392)	(12)	(33)
b) Age Cohort 1931						
1951	.9	.9	.9	1.1	1.3	1.1
1956	1.3	1.1	1.1	1.5	1.3	1.2
1961	1.3	1.4	1.5	1.9	1.9	2.2
1966	1.4	1.7	1.8	2.4	2.2	2.3
1971	1.6	1.7	2.2	2.9	2.4	2.8
(n)	(82)	(135)	(491)	(348)	(18)	(20)
c) Age Cohort 1941						
1961	.6	.5	.6	1.0	1.1	1.4
1966	.7	.7	1.0	1.5	2.4	1.8
1971	.7	.8	1.2	1.8	3.1	2.1
(n)	(79)	(116)	(496)	(307)	(18)	(38)

Figure 1


5 = Military service
6 = Other activities
7 = Unemployed
8 = Ill, injured, handicapped
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
7
8
6
5
8
4 = At school
3 = School and work
2 = Occupationally active
1= Unpaid family work
35
37
39
41
43
45
47
49
51
53
55
57
59
61
63
65
67
69
71
Cohort 1921

One last example, while not typical for this type of analysis, does illustrate certain interesting features of the study of life cycles and cohorts. In Figure 1, a special type of activity is included under the category "Other activities" for the calendar years 1940 to 1945, when these men were 19 to 24 years of age. These were of course activities relating to World War II, and include everything from illegal activities in the home front in occupied Norway, to being a refugee in Sweden, being in a forced labour battalion, serving in the merchant fleet or being in a concentration camp.

These were unique experiences, representing the special junction of being in a particular phase of the life cycle at a particular period in history. Nothing comparable is recorded for the younger cohorts. And we have reason to believe that this type of activity is by no means irrelevant to the analysis of socio-economic statuses and processes.

We have examined the number of months devoted to war-related activities for men coming from different socio-economic backgrounds. The estimates we have now are faulty, because they refer to a five-year time period somewhat out of phase with history - namely the years 1942 - 1946. Nonetheless, the trend seems clear: the more favourable the young men's social origins, the more time they spent in war-related activities. The percentage of time (for this misphased period) given to war activities is 10.7 for men from most favourable social origins, decreasing to under 6% for those from least privileged social origins. And whatever else participation in war related activities may have meant, we have evidence that for some of the men in the sample it had so serious effects on their health that they were permanently handicapped and out of the labour force by the time they were interviewed. Among the relatively small group of permanently handicapped (about 3.5% of the sample of 50-year-olds) the estimated average time spent on war-related activities was about twice as high as the highest figure cited above.

To repeat, this is not a typical problem in the study of social stratification. But it suggests that a causal temporal framework is not many steps removed from a confrontation with history - from which indeed the study of social stratification should not be remote.

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Education and Social Mobility in Britain Since World War II(1)

by

A. H. Halsey

I. Education, Equality and Mobility

A conference on education and mobility reflects the fact that among the O.E.C.D. countries and beyond, education is now big business and big politics, in large measure because of the widespread expectation that riches and democratic access to them have been thought to be attainable through educational reform. It falls to me to discuss where Britain stands in what has been described as the "century of the child" and in a period of high educational aspirations and hopes for social equality through the reconstruction of schooling.

Literate, or at least polysyllabic, and numerate, or at least statistical, discussion of these questions typically occurs at conferences of university presidents or O.E.C.D. seminars, i.e. among the tiny proportion of the world's population with university degrees and international connections. The possibility that life chances are over-identified with academic certificates and educational biographies in such circles would scarcely merit remark were it not for the current debate on the "effect of family and schooling" which is the sub-title of Christopher Jencks' Inequality and which indicates a broadening in recent years of the terms of the discussion. The efficiency of educational policy as a means to the realisation of equality

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1) This essay relies for the most part on two studies of mobility in Britain, one by D.V. Glass and his associates at the London School of Economics carried out in 1949 and the other by my colleagues and me at Nuffield College, Oxford, carried out in 1972. The L.S.E. 1949 sample was one of 10,000 adults in Great Britain, i.e. it included men and women and covered Scotland. The Oxford 1972 data are from a sample of 10,000 adult males in England and Wales. In the second study we deliberately repeated the key questions from the 1949 study but also added others either to ensure comparison with the American study (carried out in 1962) by Blau and Duncan or to provide a new base-line for future enquiries. The data presented constitute a preliminary form of part of one of four monographs on the 1972 study. I am indebted particularly to David Istance for his research assistance in preparing the tabular materials at Appendices I and II. The members of the Nuffield College team are: J. Barton, M. Bett, A. Cooke, J.H. Goldthorpe, S. Graham, A.H. Halsey, K. Hope, D. Istance, C. Llewellyn, J. Ridge, P. Thorburn.

(particularly in the form of equality of opportunity) of income, wealth, health and social respect is now severely in question. Education is increasingly seen in a wider context of social policy. As an apparatus for the promotion of learning, its pride of place has been challenged. Thus, for example, after three years of research in the British "educational priority areas", I concluded that the liberal policies characteristic of British educational development in this century had failed "basically on an inadequate theory of learning. They failed to notice that the major determinants of educational attainment were not schoolmasters but social situations, not curriculum but motivation, not formal access to the school but support in the family and the community" (1). As instruments for the attainment of social equality, I similarly argued that "schools cannot accomplish important social reforms such as the democratisation of opportunity unless social reforms accompany the educational effort. And it also becomes more evident that the schools are hampered in achieving even their more traditional and strictly "educational" purposes when, in societies changing rapidly in their technologies and in the aspirations of their populations, a comparable effort to make the required change in social structures and political organisation is lacking" (1).

In any case, an anthropologist on the streets of Birmingham or Huddersfield quickly acquires a more plebian perspective on the effects of a century of reform. His ears are assailed incessantly by the monotonous vulgarity of Radio 1, his eyes by lavatory graffiti and the Daily Mirror, testifying to the existence of a literate, if dubiously educated, people. Yet, according to UNESCO, Britain is placed among the most highly favoured nations. In 1966, while the British were preoccupied with comprehensive secondary schools, new universities and polytechnics, there were 460 million adult illiterates in the U.N. member states (2).

In the context of O.E.C.D. Member countries a more familiar view of educational history would be that expressed by Martin Trow's concept of successive transformations. Professor Trow's elaborations of this version of educational modernisation, written from the vantage point of acute observation of the most expanded educational systems in the world, tempts us (though he has no such intention) to see ourselves with a future always in the American past. Thus he began in the 1950s with an analysis of the transformation of secondary schools from "terminal" to "preparatory" functions. He

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1) A.H. Halsey (ed.), Educational Priority: E.P.A. Problems and Policies, Vol. I, H.M.S.O., 1972, p.8.

2) c.f. P. Coombs, The World Educational Crisis, C.U.P., 1968, p.3. The current estimate is 750 million rising to 850 million in the 1980s.

went on in the 1960s to consider the transition from élite to mass higher education and, in the 1970s, from mass to universal college experience (1). On this view, however, the most that can be said of Britain is that it has traversed the lower and middle reaches of the Trowian evolutionary educational course. Those with higher degrees constitute only 0.2 per cent of the present adult population and those who have gone beyond 'A' levels (the qualification leading to university entrance) make up scarcely more than 7 per cent. The summit at O.E.C.D. is indeed rarified.

Nevertheless, the official evidence, exemplified by the report last year on the British Government's General Household Survey (2) shows that the direction of development, however slowly, is that way. Thus, among men aged sixty-five or over who began their schooling at the beginning of the century, 5 per cent attained some sort of higher educational qualification; but the figure has risen to 13.6 per cent for those who started after the 1944 Act and will be up to a fifth for those who are in school now. Our grandchildren may well face Martin Trow's present problems.

Meanwhile, and perhaps consequently, British preoccupations tend to remain with the how and why of distribution in educational opportunity and hence with the native tradition of "political arithmetic" - a perspective, neither Unescoian nor Trowian, which focuses on the counting of entries in school registers and public examination records, asking how they are related to social origins, occupational destinations and governmental policies.

For the pre-War period in this tradition we have the L.S.E. survey of a national sample of adults carried out from the London School of Economics by D.V. Glass and his associates in 1949 (3), from which Mrs. Floud constructed an account of the educational experience of those Britons who had mostly grown up between the 1902 and the 1944 Education Acts, i.e. between the beginning of the national system of selective secondary schools and the inception of universal secondary schooling. Her conclusions provide a firm starting point for my discussion. "The educational system", Mrs. Floud asserted, "has become the agency of occupational and social selection, and the results of the enquiry presented in this chapter make clear the limited fashion in which it functioned in this respect in the inter-War years. The 1944 Act, however, provides a framework of reform. It constitutes a promise of change in the nature and distribution of educational opportunity which, if it materialises, will almost certainly be accompanied by considerable changes both in the social hierarchy of occupations and in the degree of mobility within and between occupations."

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(1) See M. Trow, Problems in the Transition from Elite to Mass Higher Education, Carnegie Commission on Higher Education, 1973.

(2) General Household Survey, H.M.S.O., London, 1973.

(3) D.V. Glass, Social Mobility in Britain, Routledge and K. Paul, 1954.

A generation has now passed since the L.S.E. study showed the patterns of mobility among those who grew up in Britain before the War. It has been a particularly eventful thirty years; one of active social policy in search of greater equality and openness against a background of economic growth and loss of imperial status. The wish to test the tentative hopes expressed by Mrs. Floud and the underlying thesis of T.H. Marshall that modernisation tightens the bond between education and occupation lay behind the decision made by my colleagues and me at Nuffield College to conduct a new social mobility enquiry in 1972. We wanted to assess the impact of post-War social reform and economic change on the degree of openness in British society. We set out to look again at the old question of "interchange between the classes", as the problem was phrased in the older literature. But we were also aware that, in the meantime, new methods of analysis of mobility had been developed, especially by O.D. Duncan and his colleagues in the U.S.A.(1) and that, associated with these methods of multiple regression analysis, there had also been a shift away from the older conception of interchange towards the idea of hierarchical occupational differentiation in which the essential sociological task was to measure the determinants of individual occupational achievement (2). While wanting to leave open the question of the continuing validity of the concept of social class used in the L.S.E. study we decided also to take advantage of, and perhaps also to improve on, the methodological developments of our American colleagues (3).

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1) P. Blau and O.D. Duncan, The American Occupational Structure, J. Wiley, New York, 1967.

2) The results of our use of path analysis to examine the British population in 1972 from this point of view will appear in the A.H. Halsey and J. Ridge monograph, Education and Mobility in Britain, O.U.P., 1976.

3) Keith Hope (ed.) The Analysis of Social Mobility, O.U.P., 1972. See also Nathan Keyfitz's paper in this volume.

More particularly, we were anxious to discover the significance of the much publicised developments in post-War educational policy for the fluidity of movement between generations of members of the same family. Secondary education for all, free of financial handicaps, had been enshrined in the 1944 Education Act, the comprehensive movement in secondary education had gathered momentum in the 1950s and a dramatic expansion of post-secondary education had occurred in the 1960s under the patronage of the state. Theories assuming a restricted pool of ability had been harried out of respectable belief through the efforts of social researchers, not least by those associated with O.E.C.D. (1). Belief had been widespread that the maturing industrial societies were moving steadily towards meritocracy and certification as the principles of occupational placement in an ever more productive and efficient economic system of perpetual growth, requiring greater rates of inter- and intra-generational mobility into an occupational structure gradually reducing its complement of unskilled, low paid and brutalising labour while increasing its sectors of professional, technical and managerial occupations to serve an advanced technology and to deliver an ever higher GNP per capita.

Education, it seemed, was playing, and was destined still more to play, a crucial role in the formation of a more affluent and perhaps classless society. Education was perhaps the single most important determinant of a man's occupational destination. The new society involved a "tightening bond" between education and occupation.

Not all sociologists, however, accepted the educated meritocracy view of post-War mobility. Some, like C. Arnold Anderson, were sceptical of the connection (2) and, most recently, Boudon has taken Anderson's analysis as the starting point for a new model of the relation between education and social mobility (3). Others, while not necessarily rejecting the tightening bond thesis, were more impressed by the evidence

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1) A.H. Halsey (ed.), *Ability and Educational Opportunity*, O.E.C.D., Paris 1961; Torsten Husén, *Talent, Opportunity and Career*, Almqvist and Wiksel, Stockholm, 1969. In Britain itself, Appendix 1 of the Robbins Report (*Committee on Higher Education Report*, Appendix 1, London H.M.S.O., 1963, Cmnd.2154) dealt an especially powerful blow to the pool of ability theories which had provided resistance to the expansion of higher education in Britain in the previous generation.

2) C. Arnold Anderson, "A Sceptical Note on Education and Mobility", in A.H. Halsey, J.E. Floud and C.A. Anderson, *Education, Economy and Society*, Free Press, 1961.

3) R. Boudon, *Education, Opportunity and Social Inequality*, J. Wiley, New York, 1974.

of continuing strength in the power of social origins to determine the educational success of an individual. A vast and developing literature on the social determinants of educability has commanded much sociological attention since the War (1). Some, like Basil Bernstein (2) or Pierre Bourdieu (3) have sought the roots of differential educability in the institutions of language and ultimately in the power structure of society. James Coleman highlighted, in the case of the American blacks, the distribution of cultural self-evaluations and the social composition of schools rather than the distribution of material educational resources (4). Coleman also shifted the formulation of the equality debate from the aim of equality of access to equality of outcome for the average member of any social, sexual or class group.

The debate continues, though its origins can be traced at least as far back as the Victorians. Certainly the strategy of expansion since the second War, which brought us Sussex and Essex, York and Lancaster, Brunel and the North London Polytechnic, descended directly from Alfred Marshall's famous 1872 essay which forecast that in 1972, by occupation at least, every man would be a gentleman. The argument was fashioned from the simplest of economic reasoning. Education determines skill. Saleable skill determines wages. Raise the supply of education and you will reduce the supply of unskilled labour, with the consequence that its price will rise relative to the price of more plentiful skilled labour (5). This argument, coupled with repeated

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1) See A.H. Halsey, J.E. Floud and C.A. Anderson, *op.cit.*; E. Hopper, *Readings in the Theory of Educational Systems*, Hutchinson University Library, 1971; M.D.S. Young (ed.), *Knowledge and Control: New Directions in the Sociology of Education*, Collier-Macmillan, 1971; H. Silver (ed.), *Equal Opportunity in Education*, Methuen, 1973.

2) B. Bernstein, *Class, Codes and Control*, 2 vols., Routledge and K. Paul, 1971 and 1973.

3) P. Bourdieu et J.C. Passeron, *Les Héritiers: les étudiants et la culture*, Edition de Minuet, Paris, 1964.

4) J. Coleman et al., *Equality of Educational Opportunity*, U.S. Department of Health, Education and Welfare, Washington, D.C., 1966.

5) For an extended discussion of Marshall's views see A.H. Halsey, "Education and Social Class in 1972" in K. Jones (ed.), *Yearbook of Social Policy, 1972.*

demonstration that, for individuals, the economic rate of return to higher education was 10 per cent or more, underlay liberal support for educational expansion. At all events, in the post-War years a vague political sentiment in favour of education as a solution to economic sluggishness was enough to encourage governments to supply and parents to demand educational expansion to the extent of doubling university places every decade. National riches and economic equality would result from the most amiable of social policies, i.e. the encouragement of dons and schoolmistresses.

Alternatively, the origin of the problem can be found in the future rather than in the past, in the emerging society which Daniel Bell likes to label "post-industrial" (1). His eyes are on North America and the half-dozen countries which vie with one another to be the richest in the world. The outstanding attribute of such societies is abundance based on the exploitation of advanced technology through a complex division of labour. The fact of abundance generated by human skill challenges traditional principles of social distribution. Individual wealth is increasingly hard-pressed to defend itself on grounds of productive efficiency. Poverty becomes a remediable scandal. Social ethics are focused less and less on the productive and more and more on the distributive institutions of society. Against the promise of a bounteous future one can see the emergence of a new social ethic. The ideological foundations of industrial society in individualism and liberalism are gradually being eroded. Inequalities of wealth, income, power and self-respect, though modified by political democracy and liberal promotion of opportunity, no longer command wide or firm adherence. Neither the claims of class nor the pretensions of merit can serve in future to legitimate a hierarchy of power, advantage and affluence.

A new liberal-socialist philosophy is in the making. One of its more distinguished architects, Professor John Rawls, has enunciated the underlying social ideal: "All social primary goods - liberty and opportunity, income and wealth and the bases of self-respect - are to be distributed equally unless an unequal distribution of any or all of these goods is to the advantage of the least favoured". Neither the old order of class nor the newer order of meritocracy into which it may partially have evolved are compatible with this socialist ethic. Social policy must treat unequal distributions, whether they stem from social inheritance or genetic endowment, as arbitrary. Moreover, wealth and wit must be treated as social, not individual, assets. In Bell's phrasing, the principles of production and distribution become "from each according to his ability, to each according to the needs of others".

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1) D. Bell, The Coming of Post Industrial Society: A Venture in Social Forecasting, Basic Books, New York, 1973.

The relevance of all this, in the view taken by the American liberals of educational institutions, stems from the proposition that, in the post-industrial society schools and colleges come to occupy a place as central as that previously held by the business enterprise. Educational institutions manage the transmission of culture, they determine through research the direction of technological and therefore social change, and they select and form social personalities for places in the occupational structure. Thus education becomes, for them, the arena of modern political and social conflict. For them, as for socialists, there are two questions. What kinds of inequality can be regarded as legitimate and how can the illegitimate be abolished?

The first question deserves full discussion at the conference. Its most interesting ramifications in education appear in current dispute concerning the displacement of the older liberal conception of equality of opportunity (in the sense of access) by the socialist notion of equality of outcome (in the sense of equal average attainment between non-educationally defined social groups). It is the socialist ethic to which I have referred which advocates going beyond liberal policies attacking inherited wealth (1) towards those which deliberately alter the experience of upbringing and livelihood in favour of the disadvantaged. It justifies, inter alia, positive discrimination policies in education. It indicates that where racial, sexual or ethnic groups have unequal average educational attainments compared with other groups there has been social injustice. But while this argument still leaves open the question of what kinds of inequalities are morally defensible, it brings us also to the contentious second question of the role of education in determining inequalities of income and social position. How and how far does education determine life chances?

This much we do know. The simple demand, supply and price argument, or more generally Alfred Marshall's evolutionary theory of embourgeoisement through education, has not yet worked out in practice. Lester Thurow has shown on American figures that "while the distribution of education has moved in the direction of greater equality over the post-War period, the distribution of income has not. In 1950, the bottom fifth of the white male population had 8.6 per cent of the total number of years of education, while the top fifth had 31.1 per cent. By 1970 the share of the bottom fifth had risen to 10.7 per cent and that of the top fifth had dropped to 29.3 per cent." But this more equal

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1) But, as R. Neild argues, this is by no means to suggest that traditional policies for redistribution have been fully exploited.

distribution of education did not lead to more equal distribution of earnings. "From 1949 to 1969 the share of total income going to the lowest fifth dropped from 3.2 per cent to 2.6 per cent while the share going to the highest fifth rose from 44.8 per cent to 46.3 per cent" (1).

One explanation, of course, is that the demand for educated labour has risen as fast or faster than the supply. The dominant theory of human capital will no doubt be debated together with alternative views which stress the role of education as a labelling or sifting device or as character formation certifying people as employable at different levels in the social hierarchy.

At all events, apart from offering no support to the tightening bond thesis, the implications of available evidence appear to support my conclusion from E.P.A. research. Economic inequality has to be tackled by policies directly aimed at economic institutions. It is not that Bell is necessarily wrong about the key position of educational institutions in post-industrial society. Their function, however, is still perhaps what it always was - to put the stamp of status on individuals as suitable recruits for jobs. Such meritocratic tendencies as there are in society may still reside mainly in jobs and career ladders. There may be, as Thurow argues, job competition rather than wage competition. Education places people at more or less advantageous entry points to a working career. Within that framework the relation between qualifications, jobs and income may be a fairly loose one. If so, then the tightening bond thesis must be modified (though it also follows that education need not be the prisoner of the economy that we have hitherto made it).

Mobility through Education in Britain

Education has been a possible avenue of occupational and social ascent in many if not most societies. Nevertheless, *la carrière ouverte aux talents* was a forlorn revolutionary slogan throughout the nineteenth century and demand for its realisation continued as a standard element in the socialist critique of European capitalist society in the first half of the twentieth century. Education, and especially higher education, throughout the period was much more the stamp put on the social character of individuals whose jobs and life styles were pre-determined by social origin than an institutional ladder for the talented of humble birth. Thus, in those ghastly novels of inter-war life at Cambridge, C.P. Snow makes one of his characters observe that the Senior Common Room occasionally admitted a man of working class antecedents from the respectable end (which abutted on to

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1) L. Thurow, "Education and Economic Equality", *The Public Interest*, No. 28, Summer 1972, pp.66-81.

the aspiring lower-middle class) but never one from the very bottom whose father would have been an unskilled labourer.

We still do not know at all precisely how open a society Britain was in the nineteenth century. But that there was some mobility between the generations is beyond doubt, including leaps over the gulf which traditionally separated the manual mass from the non-manual minority. But the more important ladders (and snakes) were capital accumulation, on-the-job promotion, and market acumen; not education.

Oxford and Cambridge in the first half of this century dreamed along at a lunar social distance from working class life. The redbrick universities were nearer, and the technical colleges and evening institutes nearer still, to industry and elementary schools and further from the public school connection: but the centre of social gravity of the industrial city universities was bourgeois and their aspirations wistfully "Oxbridge". Readers of the British Sunday newspapers have been treated recently to an account of Oxford undergraduate life in the twenties from the diaries of Evelyn Waugh. It there appears that Waugh could see himself as poverty-stricken with pocket-money of £250 a year while the porter who carried his bag at the railway station was bringing up a family on two guineas a week and thinking himself lucky to be in steady work. Similarly, though more soberly, Sir Maurice Bowra tells us in his memoirs that his father gave him an allowance, while he was at Oxford after the first War, of £350 p.a. in addition to his scholarship of £80 (1).

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1) Sir Maurice Bowra, Memories, 1895-1939, Weidenfeld and Nicolson, 1966. And he mentions a contemporary in New College who came with £3,000. "During his three years he spent most of it, largely in giving delicious dinners ... His chief energies were given to horse-racing, and he did no work at all. When he took History Finals in 1922, he answered very few questions, and those briefly, one example being the single sentence, written in a huge, flowing hand, 'Her subjects wanted Queen Elizabeth to abolish tunnage and poundage, but the splendid creature stood firm'. He was, of course, ploughed, but it did not trouble him."

The question of openness in society, or as it was then called "social capillarity" or 'interchange between the classes", was the central preoccupation of British sociologists immediately after the second War, and their major research achievement at mid-century was the full-scale study of social mobility directed by Professor Glass to which I have referred. That study yielded an arithmetic picture of a stable hierarchy of occupational levels with, it was assumed, a linked hierarchy of status and style of life. Between the generations there was heavy self-recruitment at the top and the bottom and some fluidity in the middle. With respect to higher education the single most crucial figure was that 47 per cent of people at the top in the higher professional and managerial classes (i.e. the destinations of people with higher education) were the sons of fathers who also held or had held these top positions. Radical criticism was directed at these rigidities on grounds both of social justice and national economic efficiency.

But ever since Professor Glass published his study there has been argument and a conflict of views as to what was happening. The L.S.E. picture was formed while the country was embarking, self-consciously and under a Labour government, on an ambitious programme of social reform towards the welfare state. In employment, income and social security, housing and health as well as in education the declared intent was for a more equal and therefore more just society. Can we say a generation later that social policy has made a difference to social reality? The evidence so far has been contradictory with sociologists on the whole more pessimistic than the laity.

R.M.Titmuss and his younger followers offered cogent reasons for supposing that the tide of waxing equality had turned back at about the time of the 1949 survey. As to education, political hopes and journalistic comment rested heavily on de-streaming, comprehensive education and the expansion of higher education. But R.K. Kelsall showed in 1956 that Cambridge University undergraduates were made up almost exclusively of middle class boys and only 8 per cent came from the working class. (The equivalent figures for London, the Redbricks and Wales were 20 per cent, 30 per cent and 40 per cent respectively) (1). Later, Little and Westergaard showed that relative class chances for higher education had not changed since

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1) R.K. Kelsall, Applications for Admissions to Universities, a report on an enquiry commissioned by a committee of Vice-Chancellors and Principals of the universities of the United Kingdom, Association of Universities of the British Commonwealth, London, 1957.

the twenties (1). And as late as 1965 I was able to show that recruitment to the administrative class of the Civil Service had actually narrowed on to the public schools and Oxford arts graduates since before the War (2).

This British version of the equality debate also continues but unfortunately the sociological as well as the ethical questions it raises cannot be set directly against the normal flow of official statistics which never show us the connection between educational experience (which they document with ever-increasing elaboration), and the origins and destinations of its beneficiaries. In Britain the General Household Survey Report is something of an exception. Because it is a general family survey and not a simple collection of educational statistics, it offers answers to two questions - where did the educated come from and what material advantages do their qualifications earn for them?

The L.S.E. 1949 survey showed that, before 1944, over 70 per cent of the sons of professional men went to grammar or boarding schools compared with less than 5 per cent of the sons of the semi-skilled and unskilled. The G.H.S. figures for 1971 are, irritatingly, not in directly comparable form: but they tell the same story. The children of professional people constitute 5 per cent of those aged between eleven and fifteen but 8.6 per cent of the grammar and 23.6 per cent of the direct grant and independent school children. The semi-skilled and unskilled by contrast contribute nearly four times as many children (19.1 per cent) but very few more grammar school attenders (9.1 per cent) and less than a twelfth as many (1.9 per cent) to the direct grant and independent schools. Similarly, in a table showing students as a percentage of all age fifteen in 1971 by social origin it appears that the professional proportion was over a quarter while the semi-skilled and unskilled kept only 6 per cent of their children in statu pupillari beyond the statutory school leaving age (3).

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1) A. Little and J. Westergaard, "The Trend of Class Differentials in Educational Opportunity in England and Wales", British Journal of Sociology 15(4), pp.301-16, December 1964.

2) A.H. Halsey and I. Crewe, Social Survey of the Civil Service, evidence submitted to the Committee under the chairmanship of Lord Fulton, Volume 3(1), H.M.S.O., 1967.

3) Raised last year to age sixteen.

The material advantages that result are apparently formidable. "The modal group (of men aged between twenty and sixty-four) earned £1,000-£1,499 per annum, but those who had a college education and particularly a university education succeeded in commanding much better incomes. Two thirds of the latter earned over £2,000 a year, almost twice the proportion of any other group. Those who had not gone to college, but had been to a grammar, independent or direct grant school, still did comparatively well."

On this evidence the educational bond for jobs and incomes seems fairly tight but whether it is tightening further we cannot be sure from the G.H.S. statistics. What is beyond doubt is that formal educational status of the population is rising. Eighty per cent of men aged sixty-five plus have no formal qualifications, compared with 42.7 per cent of those aged twenty to twenty-four. No doubt, too, these rising norms of educational attainment have contributed something towards raising the quality of life in urban industrial society - that at least, is the faith of the educationist. But what may also have happened is a general adjustment of the occupational structure such that entry to it has been in process of continuous upward redefinition in terms of educational qualifications. At all events, the rate of certification, so to say, of different kinds of jobs is an uneven one. It is very high for professionals and those classified as intermediate non-manual (including non-graduate teachers and nurses). But certification has by no means yet conquered the managerial world and the ranks of the employers, 45 per cent of whom do not have formal qualifications. It is perhaps a sign, however, that the managerial and employing classes recognise the "writing on the wall" at least in the same sense that they buy far more private schooling for their children than any of the other occupational classes. The suspicion on this kind of evidence therefore must be that, after all, T.H. Marshall is right and that there are increasing penalties on the educationally uncertificated.

We want, then, in the new Oxford study to answer the question whether our society has become more open, whether changes in mobility can be related to social policy, to changes in occupational structure or other forces and in particular what role education has been playing in determining jobs and careers.

Our analysis of the general pattern of occupational mobility among the post-War generations is not yet complete. But it already seems pretty clear that the origins of the top group of professionals and managers are much more diverse than they used to be. The main force seems to have been the relative expansion of more desirable jobs. But it is also possible that meritocracy has become rather more of a reality than when Michael Young conceived of his satire in the early 1950s. If it is so (and laymen have been nearer the mark than sociologists), then the dilemma raised by Young about the social top in his *Rise of the Meritocracy* and the central question put by me about the social bottom in the first E.P.A. report has to be taken seriously. Do we want equality of opportunity or equality? Is our Utopia liberal or socialist? These fundamental questions of political choice and social philosophy are the underlying issues on which the empirical study to which we now turn may throw some light.

II. Education and Social Origin

The existence of the L.S.E. (1949) study makes it possible in principle to make a direct comparison of the educational experience of the adult male population of England and Wales in 1949 and in 1972. In presenting this comparison I follow the exposition by Mrs. Floud in the earlier study (1), thus taking advantage of her close analysis of the educational developments from the end of the nineteenth century and of the opportunity to extend the birth cohorts of the 1972 sample backwards in time to the beginnings of the state system of secondary schools. I have, however, hesitated to proceed in this way because comparison is only possible on the basis of the Hall Jones occupational scale and not on the new, more elaborate and more securely based occupational scale constructed by my colleagues, Keith Hope and John Goldthorpe, for the purposes of the 1972 study (2), which is used below in part III. The Hall Jones scale and the difficulties of the educational categories used in the earlier study set limits to the usefulness of the comparison(3).

The Private Sector

The vast majority of Britons in this century have attended state schools. But the private sector has always had a social importance out of all proportion to its numerical place in the educational system as a whole. Despite a long tradition of criticism, particularly in the Labour movement, and notwithstanding the Public Schools Commission set up by the Labour government of 1966-70 (4) these schools continue to educate a small proportion

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1) J.E. Floud, "The Educational Experience of the Adult Population of England and Wales as at July 1949", in D.V. Glass, *op.cit.*, pp. 98-140.

2) J. H. Goldthorpe and K. Hope, *The Social Grading of Occupations: A New Approach and Scale*, Clarendon Press, Oxford, 1974.

3) The notes included in Appendix I are intended to clarify the meanings of the categories used and are necessary to aid and to limit the interpretation of the figures.

4) See the Public Schools Commission's first and second reports under the chairmanship of Sir John Newsom and Professor D.V. Donnison respectively, H.M.S.O., 1968 and 1970.

of the nation's children. At the primary level, as may be seen in Table 1, they were attended by 5.5 per cent of those who were adult in 1949 and 6 per cent of those who were adult in 1972. At the secondary level the pre-War and post-War figures are not directly comparable. For the 1972 population 6.6 per cent of men had attended independent schools including the "public" schools, private preparatory schools and the direct grant schools.

Among the pre-War population the great majority of children whose primary education was received in independent schools of one sort or another went on to secondary grammar or boarding schools, normally as fee-payers. The pattern remained the same for the post-War generations, about a fifth proceeding to secondary modern schools and the rest to grammar or independent schools. Thus for those who started in private primary schools the chances of obtaining a selective secondary education was far higher than those of the corresponding group who began in the state primary schools. But for the period before the War, Mrs. Floud remarks that "their achievements hardly justify their disparate opportunities". A high proportion of them did not sit school leaving examinations.

Parents in status category 2 are shown (Table 2) to be most inclined to send their children to "private" schools both before and after the War without following this with a selective secondary education. Before the War the private primary schools showed a continuous decline in each of the ten year birth cohorts shown in Table 6 and this was attributable to the rising popularity of the state primary schools as they threw off their association with elementary education "for workmen and servants". It is noticeable, however, from the 1972 data that this trend has been arrested if not reversed for those born between 1930 and 1949.

However, the social significance of the private sector is mostly carried by the "public" schools (i.e. those with membership of the Headmasters' Conference) and their preparatory schools. These "public" schools have maintained a steady position as places of high educational privilege for a small minority, bestowing not only a general social cachet but more specifically superior chances of obtaining a university education (see below). The 1949 and 1972 figures are again not directly comparable. In particular, the later study includes the direct grant schools and day attendance at independent schools as well as boarding. On the definitions used in the 1972 study it will be seen from Table 6 that a higher proportion of men born after 1930 (7.6 per cent) received independent secondary education.

The state secondary school system

The state secondary school system originated from the 1902 Education Act and the story of its fortunes, including the gradual expansion of free or subsidised places in selective secondary schools, is told in Mrs. Floud's chapter.

It is a story of slow and halting progress in the provision of free grammar school type secondary education. Thus it may be seen from Table 1 that only 12.7 per cent of the 1949 population of men had been through the grammar schools, and, even as late as 1938, the proportion of those children in the elementary schools eligible by age who actually obtained admission was officially estimated to be still only 14.3 per cent. The supply of grammar school places always lagged behind public demand in the inter-War period and the demand was stimulated by the knowledge that "on admission to a secondary school largely depended a child's chances of leaving the ranks of the wage workers and obtaining a secure, clean and therefore 'respectable' job, and even more so his likelihood of gaining a university education and entrance to one of the professions" (1). After the War (Table 6) there was a further marked increase in the provision of grammar school places: they took in over a fifth of the boys born between 1930 and 1949. And the beginnings of the comprehensive school movement over the same period still further reduced the proportion of children going on to unselective secondary education in the modern schools. These schools accounted for only 68.7 per cent of all boys born between 1940 and 1949 compared with 89.4 per cent of those born before the 1890s.

The overall picture, therefore, is one of expanding opportunities for selective secondary education either in state or private schools with the modification of the beginnings of comprehensive secondary schooling at the very end of the period covered by the Nuffield survey. In that sense there was a slowly developing educational ladder. But this must not be taken to mean a steady improvement in the relative educational chances of those born in the lower status groups. It is true, as Mrs. Floud pointed out, that over the period 1900 to 1940 the proportion of children coming from status categories 5, 6 and 7 who achieved a selective secondary education increased substantially. The proportion of boys having this experience was multiplied probably two and a half times in the case of categories 6 and 7 and almost quintupled in the case of category 5 (Table 7). These trends continued, as the 1972 survey shows, for those born after 1930. In the case of boys from status categories 6 and 7, whereas 3.5 per cent had gained a grammar school education if born before 1890, for those born in the 1940s the proportion was 12.72 per cent (Table 7). But all categories show a marked increase and for the youngest age groups covered by the 1972 study (i.e. those born in the 1940s) a boy in categories 1 to 3 still had comfortably more than twice the chance of one born in categories 6 or 7 and it must be remembered, that, as formerly, it is the higher status categories who mainly use the independent boarding schools. Thus nearly a quarter of boys born in the 1940s into status categories 1 to 3 went on to independent including direct grant schools compared with less than 1 per cent of those born into categories 6 or 7 in the same post-War years.

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1) J.E. Floud, loc. cit., p.105.

Table 9 gives a comparison between boys who attended different kinds of primary and secondary schooling with respect to their success in secondary school leaving examinations (School Certificate and G.C.E. 'O' Level). It appears first that the success rate generally has improved enormously as between the two populations. Among the pre-War generations 6.5 per cent of boys obtained qualification at 'O' Level but this figure had more than doubled to 15.2 per cent in the case of the 1972 adults. There was also a change in the success rate associated with different patterns of schooling. Before the War, School Certificate success was greatest among those who went by scholarship from state primary schools to grammar schools, next among those who went from private primary to either grammar or independent schools and for the rest certification was a rarity. For the 1972 population the state primary and grammar school boys had lost their place to those who went from private primary schools to the grammar or independent schools. Even those who went from private primary to secondary modern schools conspicuously improved their performance (from 5.6 per cent to 20.6 per cent) and it should be noted that the comprehensive schools had an 11.4 per cent success rate compared with 4.26 per cent for the modern school boys who had begun in state primaries.

It should be noted that it is only for the post-War birth cohorts that comprehensive schooling began to make a mark on the education system and then only reaching 3.1 per cent for those born in the 1940s.

Status Origin and Schooling

With a repeated warning concerning the use of the Hall Jones scale, we can now summarise the trend of the relation between status origin and education using the data from both the 1949 and the 1972 studies. We have noted that the vast majority of children begin school in the state system. We also noted that the popularity of the state primary schools had been growing from early in the century among the higher status groups. This trend completed itself for status category 1 after the War in that the proportion of boys attending state primary schools from that social origin rose from 53.5 per cent in the 1949 population to 69.6 per cent in the 1972 population. In status category 2 it levelled off at three-quarters, in status category 3 it fell back from 93.1 per cent to 87.3 per cent and for the lowest status categories it was steady and more than 95 per cent in each case. In other words, after the War, against a background of over-whelming majority use of the state primary schools there was a clear correlation between status origin and the probability of private primary schooling falling from 30 per cent in the highest status category to less than 1 per cent in the lowest. The details are shown in Table 3.

Combining primary and secondary schooling the relation to status origin may be seen in Table 2. Here it appears that the typical man in 1972 with status antecedents in category 1 had gone from a state primary into either a grammar or independent school, these accounting for 40.7 per cent of the total. To them should be added those who joined the grammar or independent schools from a private primary education, a further 27.8 per cent, thus over two-thirds of those born in the highest social class have had a selective secondary education of some kind. A further 30 per cent have attended secondary modern schools and the remaining 1.4 per cent went to comprehensive schools. To descend the status categories is to reduce the proportion of those with a selective secondary education but the big break appears between status category 2 and 3: of the former 54.8 per cent enjoyed these privileges in secondary education compared with 30.5 per cent of those born in status categories 3 and 4. The comparable proportion for category 5 is 18.3 per cent and for the semi-skilled and unskilled manual workers 10.2 per cent. Thus while the opportunities for a superior or selective secondary education have risen between the two populations from 14.3 per cent to 23.4 per cent and though there has been some diminution in the slope of the graph of class chances, the general relationship between origin and secondary educational experience remains. What has happened is that whereas in the 1949 population a man who started life in a professional family had fifteen times as high a chance of selective secondary education as the son of a labourer, the differential had been reduced by 1972 to a factor of 6.

Status Origin and Further Education

Both the 1949 and 1972 studies also afford evidence on the relation between social origin and further education.

Perhaps the outstanding fact (from Table 10) is that in both pre- and post-War populations, three-quarters of the men educated in the main stream of state primary and secondary modern schools had no further formal education of any kind. A third of the comprehensive school attenders (who are confined to the post-War population and gradually increasing with the comprehensive movement in secondary education) went on to post-secondary institutions. But education after school is heavily concentrated, and increasingly so, among those with selective secondary schooling in grammar, direct grant or independent schools: two-thirds of these have gone on to post-secondary courses. It is also noticeable that those who enjoyed a private, as opposed to a state primary schooling, but still attended a state secondary modern school, had much better chances of continuing beyond the secondary stage.

Table 11 shows the educational data in relation to social origin. For the mainstream (state primary and secondary modern) higher parental occupational status raises the chances of further education substantially and this is a stronger force in the post-War than in the pre-War population. For those with state primary and selective secondary education, social origin still counts in the same direction but with less force and, moreover, with reduced force in the post-War period.

Origin, Schooling and University

As may be seen from Table 13, the chances of university attendance bear a similar relation to educational origin as does post-secondary education generally. The poorest chances, before and after the War, have been given to those who began in state primaries. Chances have, of course, risen for all in the second half of the century with the expansion of university places; but they remain five times as great for private compared with state school beginners in the primary schools.

Private secondary schooling has also retained, and indeed increased, its differential advantage for university entrance. The 1972 study shows that of those born between 1910 and 1929, 10.4% of the grammar school boys and 15.2% of the independent school boys went on to the universities. For those born in 1930-49 the comparable proportions rose to 18.3% and 29.5% respectively. There was thus a slight worsening of the relative chances of the state educated boy.

Looking directly at the relation between status origin and university attendance it appears (Table 14) that the positive correlation between social origin and graduation holds for all birth cohorts in both studies. For those born before 1910 in status categories 1 and 2 the relative chances of a university education were about twenty-four times greater than those of the boys from status categories 6 and 7. For the 1910-24 birth cohort (using 1972 data) the differential is about twenty. For the most recent birth cohorts of the 1972 study (1930-49) the differential has been further reduced to a factor of about eleven.

Thus inequalities of educational chances in the strict sense have worsened but social chances (i.e. relative chances between people of different social origin) have become less unequal. It is of interest, therefore, to combine the effect of social origin and schooling on university attendance and Table 15 permits us to do this. Chances of university education have risen generally. They vary from 0.8% in the birth cohort of pre-1910 manual workers with unselective state secondary education up to 31.6% among children born after 1930 in non-manual families with secondary education in the private sector. The table shows that family origin has the familiar effect irrespective of type of school. Thus to take the crucial example of grammar school boys who, as we know, became increasingly meritocratically selected as the secondary system developed during the century, for the most recent birth cohort (1930-49), those of non-manual origin had twenty-three chances in a hundred of university education compared with 13.8 in a hundred in the case of boys of manual origin. For the earlier birth cohort of 1910-1929 the figures were 12.9 in a hundred and 8.1 in a hundred respectively. It appears, therefore, that the relative force of social origin for this increasingly educationally selected group seems not to have diminished but to have increased. On any strong definition of the meaning of meritocracy we should have expected the reverse trend.

III. Educational Antecedents of Occupational Groups

In turning now to examine the educational antecedents of the hierarchy of occupational groups in British society what we have ultimately in mind is a direct look at the "tightening bond" thesis. My colleague, John Ridge, has already published a secondary analysis of the 1949 data in which he addresses himself to this question and summarises his findings as follows.

> "The evidence supports only a weak hypothesis on the 'tightening links' between education and occupation in this period (roughly the first half of the century). Adult occupation becomes more dependent on the level of educational attainment at several stages; at the secondary stage, the importance of the Ordinary School Certificate examination increases sharply, and at the post-school stage formal qualifications become more relevant. But the overall effect is if anything to increase the correlation of father's and son's status (that is, to reduce the amount of status mobility between generations): this seems to be due in part to the increased dependence of educational attainment on social origin (father's status). Within the education process itself, the differences between types of secondary school become much more consequential, especially for success in the School Certificate competition. Entry into further education becomes, in a limited sense, more open: the School Certificate is less necessary, but the influence of the secondary school itself increases. Access to qualifications does appear genuinely more open, through routes other than formal further education: but although occupational status becomes more dependent on qualifications, the effect is not great enough to produce any increase in status-mobility between fathers and sons."(1)

In analysing the data we have collected from the 1972 study we can take advantage of the Hope/Goldthorpe occupational scale and examine the relation between education and occupational variables for the birth cohorts covered by the study. We already know something of the trend in the development of occupational structure in Britain (2). It has been towards expansion of non-manual and contraction of manual work. These trends will be presented in a more elaborate and precise form in one of the monographs on the 1972 study (3). The manual groups fell, as a

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1) J.M. Ridge (ed.), Mobility in Britain Reconsidered, Oxford Studies in Social Mobility, O.U.P., 1974.

2) See A. H. Halsey, Trends in British Society since 1900, Macmillan, 1972, Chapter 4.

3) See J. Goldthorpe and C. Llewellyn, Occupational Mobility and Class Structure, O.U.P., forthcoming.

proportion of the total, from three-quarters before the first World War to about a half now. By 1971 semi-skilled manual work, skilled manual and clerical and sales workers had become of roughly equal size, each about one-fifth of the total active population. The remaining two-fifths is composed of the smaller groups of unskilled manual workers, professional and technical workers and the professionals, administrators and managers each accounting for between 7 per cent and 15 per cent of the whole.

Another aspect of the same trends reveals that entrepreneurs and manual workers have been steadily reduced in numerical importance with accompanying increases in white-collar and professional employment. It should be noted, however, that the increasing paid employment of women has largely provided the enlarged intake into the clerical, sales, sub-professional and other non-manual jobs. This element in the transformation of occupational structure must be weighed carefully in any assessment of the degree to which that structure has evolved as a meritocratic hierarchy of close association between the general desirability of jobs and the qualifications required for their incumbency. Certainly if the women are subtracted there has been no very dramatic transformation of occupational opportunities for males over the lifetime of the 1972 population.

Data from the 1972 survey relating educational origins to occupational destinations appear in Appendix II as Tables 16 to 21. In its complete form the Hope-Goldthorpe scale has 124 categories for each of which a scale value is attached (1). In the tables appended we have used a concertained version of 36 categories. Each category has a descriptive title and all are arranged in descending order of "social standing" according to the median scale value in each category.

As a first step we may examine the relation of secondary schooling to the occupational status of men in 1972 (Table 16).

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1) The values range from 82.05 to 17.52. In the concertinad version of the scale used here the 36 occupational categories are ordered according to the median scale value of their constituent basic categories. The categories of the scale are constructed so that, with only minor exceptions, they comprise occupations with the same employment status. In the case of supervisory and manual occupations, "situs" extensions are also introduced as between manufacturing; fishing, mining and quarrying; construction; and transport, communications and services. The scale values were determined by the results of an occupational grading enquiry in which a random (probability) sample of the adult population of England and Wales (n = 620) graded in all 820 occupation titles, selected so as to be representative of the 124 categories, according to the criterion of their "social standing".

The correlation between type of secondary schooling and the general desirability of jobs is clearly high. Thus the top ten categories of the scale of social standing are also, with one exception (the large proprietors), the categories with most selective secondary schooling (Grammar, Direct Grant or Independent). At the educational extremes the self-employed professionals (higher grade) who have the lowest recruitment from secondary modern schools and the highest from both grammar and independent schools contrasted with unskilled manual workers who stand thirty fifth in the status hierarchy and recruit 96.2% of their members from secondary modern schools, 2.6% from grammar schools and 0.6% from independent schools.

The overall correlation is clear and not surprising. It does not, however, represent anything approaching an educational caste system. Rather is it a correlation permitting considerable patchiness in the relation between occupational status and type of secondary schooling. In particular it should be noted that some types of secondary schooling are more occupational concentrated than others. Thus, on the one hand, the secondary modern school has contributed at least one fifth of every one of the 36 groups except for the self-employed professionals (higher grade) and, on the other hand, the independent schools are more strongly associated with self employment than directly with occupational status: for example the large proprietors are the third heaviest users of the independent schools but seventh in the status order and the self-employed workers (lower grade) are at the bottom of the status order but 13th in their attendance proportion at independent schools. The comprehensive schools, it appears, are even more, so to say, "status blind" than the modern schools.

Table 17 relates university attendance to occupational status. Again the correlation is high but by no means perfect. First it should be noted that aggregation of all occupations into 36 categories eliminates the possibility of any broad graduate class. Even the higher grade self-employed or salaried professionals, who have the highest social standing, have at most a quarter of their members with university degrees (1). The movement towards the formation of a graduate class is in any case only apparent among the four professional groups. Only the highest grade of administrators and officials have more than 10% graduate membership apart from the professionals. The managerial, proprietal and technician groups contain a tiny minority of graduates and all the rest are practically non-graduate.

Thus despite the publicity given to university expansion it would seem that selective secondary education has so far been a more discriminating force than occupational selection. Moreover it may be suspected that the various forms of part-time and

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1) Note that the figure of 36.3% graduates among self-employed professionals of the lower grade is on a small sample of 33.

full-time further education below the level of university education may be a less visible and therefore neglected factor in the processes of social selection for occupational placement. Table 18 represents the beginning of an analysis along these lines, bringing together the experience of selective secondary education, university and further education of men in the 36 occupational groups in 1972. An overall correlation between further education and occupational status again emerges and appears to be both more discriminating and more direct as a positive association with status, i.e. not confined either to professional work or to self-employment but also linked to supervision, skill and technical content so as to produce a close association with status.

In Table 19 the same material is arranged to reveal trends over time through a comparison of those aged over and under 40. The younger men are, of course, more elaborately educated than their predecessors.

The educational threshold has been raised for entry at virtually every point in its occupational hierarchy, with two exceptions of any note - lower grade administrators and officials and lower grade self-employed professionals. There are no other exceptions to the general rule that some form of further education has been experienced by the younger men at all occupational levels. The other exception (two of reduced secondary education and four of reduced graduate component) are negligible.

Though educational upgrading has been general since the war, it has been particularly marked with respect to further education for jobs in the middle ranges of the occupational hierarchy. Technicians, supervisors, higher grade service workers and some skilled manual workers have been particularly subject to this trend. The details are in Table 19 which also indicates that the top three status categories of professionals and high administrators have conspicuously increased their graduate intake in the past twenty years, more than have the industrial managers, proprietors, farmers or other groups to whom university educated men might flow.

Table 21 shows the trends in the same way with respect to formal qualifications. The general pattern of upgrading again appears and a positive but less than perfect association of status with certification. There has been a considerable elongation of the qualifications differential between the thirty-six occupational groups in the past generation, especially at 'O' Level and 'A' Level (1).

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1) Though, again, Groups 5 and 9 disturb the uniformity of these trends.

Finally, as a crude test of the degree to which the bond between education and occupation has been tightening, we may examine correlations (R) between the social standing of the thirty-six occupational groups and their positions on each of the educational measures used in Tables 16 - 21. They are as follows:-

		Under 40s			Over 40s		
		Tau	Gamma	r	Tau	Gamma	r
R_1	Selective secondary education	0.35	0.56	0.43	0.32	0.60	0.41
R_2	Further education	0.34	0.50	0.42	0.35	0.54	0.42
R_3	University education	0.22	0.69	0.28	0.17	0.78	0.22
R_4	'O' Level qualifications	0.32	0.60	0.40	0.29	0.62	0.37
R_5	'A' Level qualifications	0.27	0.65	0.34	0.18	0.74	0.24
R_6	University qualifications	0.23	0.74	0.29	0.18	0.81	0.24

Three forms of correlation have been used - Tau, Gamma and product moment. The tightening bond thesis would be supported by higher correlations in the younger cohort. Product moment correlations support the thesis for all six of the correlations. Tau correlations support the thesis with respect to qualifications but not for further educational experience. Gamma correlations, which may be the most suitable for this type of data, negate the thesis. All in all, then, no firm general conclusions can be drawn from this particular analytical procedure.

Speculative Conclusions

In this paper I have first used the L.S.E. 1949 study and our own 1972 study to trace the relation between social origin and educational patterns in Britain from the end of the nineteenth century to the first generation of those who passed through the schools after the 1944 Education Act. The story briefly and crudely is of expanding educational opportunities at the secondary and post-secondary level and therefore of an increasingly qualified population. Social origin, however, has continued, if with decreasing force, to determine access to selective secondary education and university attendance: and the purchase of private schooling at either the primary or the secondary level improves educational chances at a later stage.

In part III I have used the Oxford 1972 data and the occupational classification developed in that study to show the relation between educational experience and occupational destination. The overall correlation between education and occupation is clear enough but it is just as important to notice the patchiness or varying closeness of the relation in different sectors of the occupational structure. It follows that a disaggregated description is required for accurate appraisal of the bond between education and occupation which cannot be interpreted in any simple sense as having tightened.

The next step in the analysis, on which I shall hope to report at the conference, is to carry out a path analysis both for the sample as a whole and disaggregated by birth cohorts and occupational groupings. This should enable us to arrive at a clear, but necessarily more complex appraisal of the tightening bond thesis.

Meanwhile, my colleague Keith Hope has been analysing trends of mobility in an attempt to weight the importance of changes in occupational structure as distinct from changes in the likelihood of status movement between fathers and sons irrespective of changes in the occupational structure. The tentative conclusion seems to be emerging that the transformation of the occupational structure (which John Goldthorpe and Catriona Llewellyn are describing in their monograph) accounts for the undoubted increases in upward occupational mobility of the more recent birth cohorts. Little if any increase in fluidity is to be found and in that sense British society does not appear to have become more open in the post-War years.

Thus the great underlying fact is the transformation of the occupational structure with its increasing opportunities for professional and technical work. Women have entered the work force in increasing numbers to take the middle range clerical, sales and sub-professional positions but men may, in the same process, have had more opportunities at the top of the non-manual hierarchy. The same process has the effect of diversifying the social origins of middle class jobs and is not in the least inconsistent with the fact that manual workers today have overwhelmingly manual forebears.

With respect to education, it is likely that the path analyses will deliver low coefficients. In other words, education will be able to account for a rather small proportion of the variance in occupational achievement. This will bring us face to face again with the problem of our lack of a convincing theory of occupational mobility and the inadequacies of existing theories including the tightening bond thesis. Under these conditions there is some temptation to attribute mobility to luck. In fact, I remain convinced that what may be experienced as good or ill fortune in the life of an individual may be sociologically systematic and revealed as such when we build a model of sufficient complexity to include and measure the relevant aspects of stratification, family and career contingencies through which the individual makes his way in society.

APPENDIX I

TABLES COMPARING THE L.S.E. (1949) AND THE OXFORD (1972) DATA

Table 1

Percentage Distribution of Attendance at various Types of Primary and Post-Primary Schools

	Primary School Attended		Total
	State %	Private %	%
1949	94.5	5.5	100 (3665)
1972	94.0	6.0	100 (9926)

	Secondary School Attended			Comprehensive	Total
	Modern %	Grammar %	Independent %	%	%
1949	85.4	12.7	1.9	-	100 (3672)
1972	75.73	16.64	6.63	1.27	100 (9926)

Table 2

Primary and Secondary Schooling in relation to Status Category of Father

Schools attended	Status Category of Father 1 %		2 %		3-4 %		5 %		6 - 7 %		Total %	
	1949	1972	1949	1972	1949	1972	1949	1972	1949	1972	1949	1972
State primary: modern	27.5	27.3	47.7	40.5	77.5	66.7	91.7	78.9	95.2	88.2	84.7	74.0
State primary: grammar or independent	26.0	40.7	25.8	32.9	16.7	25.4	6.3	16.8	4.0	9.7	9.9	18.7
State primary: comprehensive	-	1.2	-	0.9	-	1.3	-	1.4	-	1.3	-	1.3
Private primary: modern	0.8	2.8	4.0	3.8	1.2	1.5	1.0	1.4	0.1	0.3	1.0	1.3
Private primary: grammar or independent	45.7	27.8	23.5	21.9	4.6	5.1	1.0	1.5	0.7	0.5	4.4	4.7
Private primary: comprehensive	-	0.2	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
TOTAL	100 (427)	100 (432)	100 (351)	100 (6[illegible]	100 (663)	100 (2114)	100 (1183)	100 (2990)	100 (827)	100 (3004)	100 (3451)	100 (3193)

Table 3

Primary Schooling in relation to Status Category of father

Status Category of father

Primary School Attended	1 % 1949	1 % 1972	2 % 1949	2 % 1972	3 % 1949	3 % 1972	4 % 1949	4 % 1972	5 % 1949	5 % 1972	6-7 % 1949	6-7 % 1972	Total % 1949	Total % 1972
State Primary	53.5	69.6	73.7	74.6	93.1	87.3	96.0	97.5	97.9	97.0	99.2	99.2	94.6	94.0
Private Primary	46.5	30.4	26.3	25.4	8.7	12.7	4.0	2.5	2.1	3.0	0.8	0.8	5.4	6.0
TOTAL	100 (127)	100 (441)	100 (152)	100 (869)	100 (355)	100 (864)	100 (550)	100 (1267)	100 (1527)	100 (3013)	100 (850)	100 (3037)	100 (3541)	100 (9926)

Table 4

Attendance at State Primary Schools over time in relation to Status Category of father

Date of birth	Status Category of father 1 - 4: Total primary school population 000s		1 - 4: % state primary school pupils		5: Total primary school population 000s		5: % state primary school pupils		6-7: Total primary school population 000s		6-7: % state primary school pupils	
	1949	1972	1949	1972	1949	1972	1949	1972	1949	1972	1949	1972
1889 or earlier	251	-	84.1	-	279	-	97.9	-	144	-	97.2	-
1890-99	189	-	84.7	-	219	-	98.2	-	128	-	99.3	-
1900-09	249	-	88.0	-	338	-	97.4	-	162	-	99.5	-
1910-19	241	541	88.7	87.0	347	585	98.0	97.2	178	655	100.0	98.8
1920-29	219	590	89.1	86.0	318	675	98.4	98.4	221	716	99.6	100.0
1930-39	-	565	-	84.0	-	592	-	95.0	-	669	-	98.5
1940-49	-	761	-	86.8	-	739	-	96.9	-	685	-	99.0

Table 5

Post Primary Schooling of State Primary and Private Primary School Pupils Respectively

School Attended		1949 %	1972 %
STATE PRIMARY	Modern	89.3	79.16
	Grammar or Independent	10.7	19.51
	Comprehensive	-	1.33
		100% (3433)	100% (9239)

School Attended		1949 %	1972 %
PRIVATE PRIMARY	Modern	19.1	20.50
	Grammar or Independent	80.9	77.31
	Comprehensive	-	0.34
		100% (199)	100% (582)

Table 6

Attendance at various types of Primary and Post-Primary Schools over time

Date of Birth	Primary Schools					
	State %		Private %		Total %	
	1949	1972	1949	1972	1949	1972
1889, or earlier	91.8	-	8.2	-	100 (706)	100 (-)
1890-99	93.8	-	6.2	-	100 (550)	100 (-)
1900-09	94.6	-	5.4	-	100 (770)	100 (-)
1910-19	95.7	94.3	4.3	5.7	100 (791)	100 (2052)
1920-29	96.1	95.0	3.9	5.0	100 (789)	100 (2255)
1930-39	-	92.5	-	7.5	100 (-)	100 (2108)
1940-49	-	93.8	-	6.2	100 (-)	100 (2436)
TOTAL	94.5	93.9	5.5	6.1	100(3665)	100 (8831)

Table 6 (Continued)

Date of Birth	Secondary Schools									
	Modern %		Grammar %		Independent %		Comprehensive %		Total %	
	1949	1972	1949	1972	1949	1972	1949	1972	1949	1972
1889 or earlier	89.4	-	8.3	-	2.3	-	-	-	100 (702)	-
1890-99	86.1	-	12.1	-	1.8	-	-	-	100 (554)	-
1900-09	88.3	-	9.6	-	2.1	-	-	-	100 (771)	-
1910-19	83.7	84.1	14.5	10.6	1.8	5.2	-	0.0	100 (792)	100 (2062)
1920-29	80.9	81.6	17.5	13.5	1.6	4.9	-	0.1	100 (794)	100 (2256)
1930-39	-	71.9	-	20.2	-	7.6	-	0.4	-	100 (2114)
1940-49	-	68.7	-	20.6	-	7.6	-	3.1	-	100 (2437)
TOTAL	85.4	76.3	12.7	16.4	1.9	6.4	1.0	1.0	100 (3672)	100 (9926)

Table 7

Distribution of Pupils in Attendance at various types of Post-Primary School over time according to Status Category of Father

(a) MODERN

Date of birth	1 - 3 %		Status Category of Father 4 %		5 %		6 - 7 %	
	1949	1972	1949	1972	1949	1972	1949	1972
1889 or earlier	67.6	-	90.3	-	97.9	-	96.5	-
1890-1899	55.3	-	83.5	-	95.4	-	97.3	-
1900-1909	64.5	-	87.4	-	93.0	-	98.7	-
1910-1919	55.6	49.72	77.4	86.33	89.9	87.52	95.5	95.55
1920-1929	45.7	54.01	74.3	82.04	89.0	84.58	90.6	93.66
1930-1939	-	42.10	-	69.88	-	77.56	-	84.39
1940-1949	-	45.94	-	66.77	-	76.39	-	86.37

(b) GRAMMAR

Date of Birth	1 - 3 %		Status Category of Father 4 %		5 %		6 - 7 %	
	1949	1972	1949	1972	1949	1972	1949	1972
1889 or earlier	23.4	-	7.8	-	2.2	-	3.5	-
1890-1899	38.4	-	13.9	-	4.1	-	2.3	-
1900-1909	26.4	-	10.2	-	6.8	-	1.2	-
1910-1919	35.5	23.07	20.7	11.51	10.1	10.48	4.4	3.98
1920-29	45.7	26.42	25.7	14.08	10.7	13.36	8.9	5.91
1930-1939	-	33.97	-	23.93	-	18.75	-	13.52
1940-1949	-	29.87	-	28.06	-	19.91	-	12.72

Table 7 (Continued)

(c) INDEPENDENT

Date of Birth	Status Category of Father 1 - 3 % 1949	1972	4 % 1949	1972	5 % 1949	1972	6 - 7 % 1949	1972
1889 or earlier	9.0	-	1.9	-	-	-	-	-
1890-1899	6.3	-	2.5	-	0.5	-	-	-
1900-1909	9.1	-	2.4	-	0.3	-	-	-
1910-1919	8.9	22.25	1.9	2.15	-	1.99	-	0.46
1920-1929	8.5	19.51	-	3.87	0.3	2.05	0.4	0.42
1930-1939	-	23.92	-	6.17	-	3.66	-	2.08
1940-1949	-	24.22	-	5.16	-	3.68	-	0.89

Table 8

Distribution of Grammar and Independent School Pupils according to Primary Education over time

Date of Birth	Private Primary % 1949	Private Primary % 1972	State Primary % 1949	State Primary % 1972	Total % 1949	Total % 1972
1889 or earlier	63.9	-	36.1	-	100 (72)	-
1890-99	30.7	-	69.3	-	100 (75)	-
1900-09	39.3	-	60.7	-	100 (89)	-
1910-19	22.0	26.9	78.0	73.1	100 (127)	100 (316)
1920-29	19.2	21.1	80.8	78.9	100 (151)	100 (412)
1930-39	-	20.1	-	79.9	-	100 (578)
1940-49	-	17.3	-	82.7	-	100 (676)
TOTAL	31.3	20.4	68.7	79.6	100 (514)	100 (1982)

Table 9

Success in School Certificate in relation to Schooling

School Certificate/'O' Levels

	Obtained %		Failed or not sat %		Total %	
Schools attended	1949	1972	1949	1972	1949	1972
State primary: modern	1.1	4.26	98.9	95.74	100 (6632)	100 (7314)
State primary: grammar	41.7	53.19	58.3	46.81	100 (686)	100 (1517)
State primary: comprehensive	-	11.38	-	88.62	-	100 (123)
Private primary: modern	5.6	20.6	94.4	79.4	100 (160)	100 (131)
Private primary: grammar or independent	33.0	64.0	63.2	36.0	100 (427)	100 (450)
TOTAL	6.5	15.186	93.5	84.814	100 (7905)	100 (9535)

Table 10

Further Education in relation to Schooling

Further Education

	None %		Part-time %		Full-time %		Total %	
	1949	1972	1949	1972	1949	1972	1949	1972
State primary: modern	75.4	74.8	21.8	20.6	2.8	4.5	100 (3508)	100 (7314)
State primary: grammar or independent	35.2	34.2	42.9	34.6	22.0	31.0	100 (304)	100 (1802)
State primary: comprehensive	-	65.0	-	23.5	-	11.3	-	100 (123)
Private primary: modern	47.4	43.5	39.5	33.5	13.1	22.9	100 (38)	100 (131)
Private primary: grammar or independent	44.3	31.1	19.6	27.5	36.1	41.3	100 (158)	100 (450)

Table 11

Further Education in Relation to Schooling and Status Category of Father

STATUS CATEGORY OF FATHER	STATE PRIMARY: MODERN								STATE PRIMARY: GRAMMAR OR INDEPENDENT							
	FURTHER EDUCATION															
	None		Part-time		Full-time		Total		None		Part-time		Full-time		Total	
	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	49	'72	49	'72	49	'72
1 - 4 (%)	69.6	68.3	25.3	24.1	5.1	7.5	100 (783)	(1796)	34.4	31.1	42.5	33.3	23.1	35.5	100 (221)	(929)
5 (%)	73.8	71.9	24.1	23.9	2.1	4.1	100 (1375)	(2359)	34.7	34.2	44.2	37.6	21.1	28.0	100 (95)	(502)
6 - 7 (%)	83.0	80.6	15.0	16.6	2.0	2.7	100 (800)	(2650)	44.1	41.5	41.2	35.3	14.7	23.0	100 (34)	(291)
TOTAL (%)	75.2	74.3	21.9	21.1	2.9	4.4	100 (2958)	(6805	35.4	33.7	42.9	34.9	21.7	31.2	100 (350)	(1122)

Table 11 (Continued)

Further Education in Relation to Schooling and Status Category of Father

	PRIVATE PRIMARY: GRAMMAR OR INDEPENDENT								STATE PRIMARY: COMPREHENSIVE							
	FURTHER EDUCATION															
STATUS CATEGORY OF FATHER	None		Part-time		Full-time		Total		None		Part-time		Full-time		Total	
	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	49	'72
1 - 4 (%)	40.9	29.6	18.9	26.6	40.2	43.8	100 (132)	(372)	-	66.6	-	28.2	-	5.1		100 (39)
5 (%)	66.7	40.0	26.6	31.1	6.7	28.8	100 (15)	(45)	-	51.1	-	27.9	-	20.9		100 (43)
6 - 7 (%)	-	28.5	-	50.0	-	21.4	100 (6)	(14)	-	76.3	-	15.7	-	7.8		100 (38)
TOTAL (%)	45.1	30.6	19.0	27.8	35.9	41.5	100 (153)	(431)	-	64.8	-	24.1	-	11.6		100 (120)

Table 12

Distribution of individuals holding university qualifications according to status category of father

Status category of father	Percentage of all subjects who received university qualifications		Total number of known status origin	
	1949	1972	1949	1972
1	10.15	23.3	256	479
2	2.82	11.7	319	738
3	1.16	7.6	775	915
4	0.35	3.4	1137	1336
5	0.09	2.6	3432	3078
6 and 7	0.10	1.1	1954	3091

Table 13

University Education in relation to Primary Education and Secondary Education over Time

Students originating from:

	State Primary		Private Primary		Total[1]	
	1949 %	1972 %	1949 %	1972 %	1949 %	1972 %
Before 1910	1.2 (1875)	- -	13.5 (133)	- -	2.0 (2044)	-
1910-1929	3.0 (1501)	1.54 (4079)	15.6 (64)	15.79 (228)	3.4 (1644)	2.23 (4459)
1930-1949	-	5.2 (4236)	-	24.35 (308)	-	6.20 (4135)

Students originating from:

	Grammar		Independent		Total	
	1949 %	1972 %	1949 %	1972 %	1949 %	1972 %
Before 1910	9.0 (200)	-	19.0 (42)	-	10.8 (242)	-
1910-1929	11.4 (255)	10.38 (520)	40.7 (27)	15. 20 (217)	14.3 (282)	11.80 (737)
1930-1949	-	18.33 (927)	-	29.47 (346)	-	21.98 (1237)

Table 14

University Education in relation to Status Category of Father over Time

Date of Birth		Status Category of Father									
		1 - 2		3 - 4		5		6 - 7		Total	
		1949	1972	1949	1972	1949	1972	1949	1972	1949	1972
Before 1910	No. of subjects of known status origins	160	-	503	-	825	-	431	-	1919	-
	No. of subjects reaching university	19	-	10	-	9	-	2	-	40	-
	% of subjects reaching university	11.9	-	2.0	-	1.1	-	0.5	-	2.1	-
1910-1929	No. of subjects of known status origins	111	439	338	961	651	1312	394	1395	1494	4107
	No. of subjects reaching university	20	54	20	27	11	18	4	9	55	108
	% of subjects reaching university	18.0	12.3	5.9	2.81	1.7	1.37	1.0	0.64	3.7	2.63
1930-1949	No. of subjects of known status origins	-	629	-	1047	-	1423	-	1404	-	4503
	No. of subjects reaching university	-	14.3	-	81	-	59	-	27	-	310
	% of subjects reaching university	-	22.73	-	7.73	-	4.14	-	1.92	-	6.88

Table 15

University education in relation to status category of father and secondary education over time

Born	Status Category of Father												TOTAL					
	1 - 4						5 - 7											
	Mod.		Gram.		Ind.		Mod.		Gram.		Indp.		Mod.		Gram.		Ind.	
	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72	'49	'72
Before 1910																		
No. of subjects of known status origin and secondary schooling	488	-	134	-	37	-	1195	-	47	-	2	-	1683	-	181	-	39	-
No. of such subjects reaching University	6	-	15	-	8	-	8	-	3	-	0	-	14	-	18	-	8	-
Percentage of subjects reaching University	1.2	-	11.2	-	21.6	-	0.7	-	6.4	-	0.0	-	0.8	-	9.9	-	20.5	-
1910 -1929																		
No. of subjects of known status origin and secondary schooling	283	873	141	263	23	177	937	2390	96	222	2	32	1220	3263	237	685	25	209
No. of such subjects reaching University	6	8	23	34	11	29	9	5	6	18	0	3	15	13	29	52	11	32
Percentage of subjects reaching University	2.1	0.9	16.3	12.9	47.8	16.3	1.0	0.2	6.3	8.1	0.0	9.3	1.2	0.5	12.2	10.7	44.0	15.
1930-1949																		
No. of subjects of known status origin and secondary schooling	-	816	-	455	-	265	-	2189	-	439	-	70	-	3005	-	896	-	335
No. of such subjects reaching University	-	15	-	105	-	84	-	8	-	61	-	15	-	23	-	166	-	99
Percentage of subjects reaching University	-	1.8	-	23.0	-	31.6	-	0.3	-	13.8	-	21.4	-	0.7	-	18.5	-	29.5

Notes to the Tables

It cannot be too strongly emphasized that the tables which juxtapose figures from the 1949 and 1972 studies in Appendix I have very severe limitations from the point of view of comparability. There are two basic difficulties. The first is that of the status categories and the second with respect to educational categories. Status classification in these tables is on the Hall-Jones scale (1). These were difficult to replicate. "The only guide-lines for the Hall-Jones scale were category descriptions and thirty determinate occupational assignments. The category descriptions in themselves are inadequate to define a coding frame; and the thirty occupation titles are unrepresentative of modern industrial society and so form weak reference points."(2) The Hall-Jones categories were defined as follows.

1. Professional and higher administrative
2. Managerial and executive
3. Inspectional, supervisory and other non-manual, higher grade
4. Inspectional, supervisory and other non-manual, lower grade
5. Skilled manual and routine grades of non-manual
6. Semi-skilled manual
7. Unskilled manual

In using the Hall-Jones scale to classify the 1972 respondents we found, when comparing the overlapping cohorts that there were serious discrepancies in category 5 and to a lesser extent in category 6.

Table 1 in the 1949 study is of the percentage distribution of attendance at various types of primary and secondary schools. Our category 'state primary" includes those who went to primary schools in England, Wales, Scotland and Ireland. Foreign schools and others, such as special schools, are excluded. Those who attended pre-1944 elementary schools up to the age of eleven or twelve are included, as are "maintained', "aided" or "controlled" schools and "national" schools in Ireland. Glass and Hall say of their "Secondary Day 'A'" category (3) that it "covers normal post-primary education up to the age of fifteen at present, and mainly up to thirteen or fourteen in the past". It is not clear how special and foreign schools were categorised. "Private" primary is the category used in 1972 cases where both state and private primary schooling was experienced.

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1) For details see D.V. Glass, op.cit., Chapter II.

2) J.M. Ridge (ed.), Mobility in Britain Reconsidered: Oxford Studies in Social Mobility, O.U.P. Working Papers No.2,p.100.

3) Ibid., p.82 .

For secondary schooling we have used the categories modern, comprehensive, grammar and independent. This compares with the three categories used in the earlier study - Secondary Day A (otherwise called modern), Secondary Day B (secondary grammar) and secondary boarding. Obviously, the comprehensive category applies only to the younger age groups. In the category "modern" we have counted secondary modern schools, junior secondary schools, all-age schools (advanced division), elementary schools (secondary stage) and vocational schools (Republic of Ireland). Central schools and technical schools also form part of this category. Foreign schools and others (such as armed services schools) are not included.

In the case of qualifications the category "School Certificate/'O' Level" assimilates changes in 1950 when the School Certificate, matriculation and higher school certificates were replaced by the General Certificate of Education Ordinary Level and Advanced Level. The earlier study dealt with School Certificate only. Our category covers those who achieved School Certificate and those who gained matriculation. If a respondent had five or more passes at 'O' Level they were also included. This is in line with but not an exact application of the rules used in the old School Certificate for a pass in that examination as a whole. 'O' Levels, it should be noted, can be taken as single subjects. The 'C' Level is here taken as equivalent to a subject in School Certificate. Scotland is similarly treated, and 'O' Levels, 'O' Grade, day school, higher and intermediate certificates are included in our School Certificate/'O' Level category - again requiring five or more passes if they are taken singly. The Higher Leaving Certificate is also included here, though it is taken at the end of six years of secondary schooling and may be seen as somewhat more advanced than the 'O' Level. Unfortunately, Honours in the Leaving Certificate have not been distinguished in the 1972 data. The following qualifications have not been included: C.S.E., matriculation for those holding the School Certificate, clerical and commercial qualifications, Scottish Higher Leaving Certificate, and Irish Intermediate Certificate. Foreign examinations have also been excluded.

In the 1972 survey we collected information both for examinations taken at school and after leaving school and both are included in Table 9. It is not clear whether the same procedure was followed in the earlier study. The 1972 survey, for examinations taken before leaving school, distinguishes only those passed and those who have none. The data cannot thus be broken down, as in the 1949 data, into those who failed these examinations and those who did not sit them. The 1949 columns are here combined so that the percentage who obtained the examinations, and the percentage who failed or did not sit them are distinguished. It is to be noted that while this column is headed "Failed/not sat", it includes those who achieved 'O' Levels but not in five or more subjects.

The tables relating further education to schooling, and further education to schooling and status category of father, are in terms of full-time, part-time or no further education. Again it is difficult to know what is to be included in each category to make it comparable with the 1949 study. The 1972 questionnaire split the further education sections into:-

> No further education; apprenticeship of any kind; articled to a profession; in-firm training; day release or block release; sandwich course; part-time vocational training (other than in-firm, day release or block release); other part-time; correspondence course (vocational); correspondence course (leisure interests) and full-time. Armed forces training was also coded separately.

"Full-time" for the 1972 columns covers those who were coded full-time from the questionnaire. As well as more academic further education, it also includes those who might more easily be described as having full-time training, yet can be said to be receiving full-time education in a way that in-firm training would not be so described - for instance, nursing. Part-time further education refers to those who had some form of recognised education as well as a job. Day release or block release, sandwich course, correspondence course, vocational and other part-time vocational training are included in this category. Those articled to a profession, and apprentices whose apprenticeship took the form of either sandwich course, day release or block release, part-time vocational training or correspondence course (vocational) are also included in this category. The respondents who had been articled are coded together with apprentices. Those who had completed/failed to complete/still working on level 'b' (except for 003 and 004) and level 'c' qualifications (from the 1966 Census Classification of Qualifications) are counted as having had part-time further education. 'None', for those receiving no further education, is a residual of respondents not covered by the other two categories. It includes, therefore, not only those coded as having no further education from the questionnaire, but also in-firm training, other part-time (leisure), correspondence course (leisure interests) and apprentices who had neither worked on 'b' nor 'c' level qualifications nor whose method of apprenticeship was not sandwich course, day or block release, correspondence course (vocational) or part-time vocational training. Armed services training is also a part of this category. If several methods or types of further education had been experienced by the individual, they are put into the highest category in the order full-time (highest), part-time, none (lowest).

Table 12 of the 1949 study shows the distribution of individuals holding various types of qualification according to the status category of the father. Only the percentage with university qualifications are compared here. It is not clear from the 1949 study what was included in the "professional" category, or what was the content of the "miscellaneous" category.

The 1972 survey had more extensive data concerning qualifications. Thus had, for instance, the "miscellaneous"category been treated as a residual, it is likely to have contained more, and itself been different in content, from the 1949 coding. "University" qualifications covers those who had completed a first or a higher degree, whether or not they had attended the university full time. Diplomas of technology are counted as university qualifications, university diplomas are not. This is not because they do not belong in this category, but because they could not be separated from the rest of the level 'b' qualifications. Those who had university diplomas but no degree or diploma of technology are therefore missing from the percentage with university qualifications.

University education is central to the last three tables of the 1949 Appendix 1. They are concerned with the "number of subjects reaching university" and with "university education". These are taken as equivalent, and the important factor was taken to be that respondents should have attended a university, whether or not they completed the course, or whether or not they obtained a university qualification. Included are those who had full-time further education associated with either a first or a higher university degree, whether they obtained the degree, failed it, did not complete it or were still working on it at the time of the survey. Identifying having worked for a degree with full-time further education excludes some who took university qualifications as external students. Again, university diplomas and other university courses could not be separated from the other level 'b' qualifications. Therefore, unless the respondent had worked full-time on a university degree he is not covered by the university education category.

Certain of the 1949 Appendix I tables have not been reproduced here: Tables 9 and 10, which refer to the 1944 arrangement for free and special places at grammar schools and Table 11 which refers to success in School Certificate of all ex-secondary grammar pupils. As seen, the 1972 survey accommodates 'O' Levels as well as the School Certificate, and the percentages are based on the total number on the entire 1949 survey who had attended grammar schools, not the number from each cohort who had done so.

APPENDIX II

OXFORD (1972) DATA ON EDUCATION AND OCCUPATION

Table 16

Educational Experience at Secondary School Level for the Occupational Categories of Adult Males Living in England and Wales in 1972

Occupational Category	Modern %	Comprehensive %	Grammar %	Independent %	Total %
1. Self-employed professionals	14.4	1.1	51.1	33.3	100 (90)
2. Salaried professionals: higher grade	36.4	0.4	46.7	16.5	100 (455)
3. Administrators and officials: higher grade	43.6	0.4	37.1	18.9	100 (483)
3 Industrial managers: large enterprises	49.8	1.0	35.0	14.3	100 (203)
5. Administrators and officials: lower grade	47.9	1.0	37.5	13.5	100 (96)
6. Technicians: higher grade	55.3	1.7	33.3	9.7	100 (237)
7. Large proprietors	61.8	0.0	11.8	26.5	100 (34)
8 Industrial and business managers: small enterprises	50.6	0.0	31.3	18.1	100 (83)
9. Self-employed professionals: lower grade	21.9	0.0	34.4	43.7	100 (32)
10. Salaried professionals: lower grade	36.7	0.6	47.1	15.6	100 (327)
11. Farmers and farm managers	59.5	0.0	21.4	19.0	100 (84)
12. Supervisors of nonmanual employees: higher grade	59.6	0.0	31.9	8.5	100 (94)
13. Small proprietors	76.4	1.1	15.2	7.2	100 (340)
14. Managers in services and small administrative units	64.6	0.5	23.7	11.1	100 (158)
15. Technicians: lower grade	85.8	1.9	9.9	2.4	100 (373)
16. Supervisors of nonmanual employees: lower grade	62.2	0.0	31.1	6.7	100 (45)
17. Supervisors of manual employees: higher grade	86.6	0.8	11.3	1.2	100 (435)
18. Skilled manual workers in manufacturing: higher grade	92.1	1.6	5.8	0.6	100 (504)
19. Self-employed workers: higher grade	85.4	2.0	8.8	3.7	100 (295)
20. Supervisors of manual employees: lower grade	88.8	0.0	6.3	4.8	100 (269)
21. Nonmanual employees in administration and commerce	61.3	3.4	28.1	7.3	100 (620)

Table 16 (Continued)

Occupational category	Modern %	Comprehensive %	Grammar %	Independent %	Total %
22. Skilled manual workers in manufacturing: intermediate grade	89.9	2.4	5.3	2.4	100 (375)
23. Skilled manual workers in construction	93.3	1.4	4.4	0.9	100 (335)
24. Smallholders without employees	75.0	0.0	13.2	11.8	100 (68)
25. Service workers: higher grade	92.7	0.0	0.0	7.3	100 (41)
26. Semi-skilled manual workers in manufacturing	92.0	1.0	6.1	0.9	100 (578)
27. Skilled manual workers in transport, communications and services, and extractive industries	96.1	0.4	3.2	0.4	100 (285)
28. Service workers: intermediate grade	70.0	5.6	15.6	8.9	100 (90)
29. Self-employed workers: intermediate grade	81.2	0.0	14.1	4.7	100 (85)
30. Skilled manual workers in manufacturing: lower grade	96.2	1.0	2.1	0.6	100 (479)
31. Agricultural workers	85.1	1.4	8.1	5.4	100 (148)
32. Semi-skilled manual workers in construction and extractive industries	94.6	2.3	3.2	0.0	100 (221)
33. Semi-skilled manual workers in transport, communications and services	92.8	1.0	5.2	1.0	100 (288)
34. Service workers: lower grade	89.4	0.8	6.8	3.0	100 (132)
35. Unskilled manual workers	96.2	0.6	2.6	0.6	100 (343)
36. Self-employed workers: lower grade	82.8	0.0	6.9	10.3	100 (29)

Table 17

Educational experience at university level for the occupational categories of adult males living in England and Wales in 1972

	Occupational category	Reached University %	Did not reach University %	Total %
1.	Self-employed professionals	23.9	76.1	100 (96)
2.	Salaried professionals: higher grade	25.0	75.0	100 (503)
3.	Administrators and officials: higher grade	11.4	88.6	100 (496)
4.	Industrial managers: large enterprises	8.7	91.3	100 (206)
5.	Administrators and officials: lower grade	2.0	98.0	100 (97)
6.	Technicians: higher grade	6.6	93.4	100 (242)
7.	Large proprietors	5.5	94.5	100 (36)
8.	Industrial and business managers: small enterprises	4.7	95.3	100 (84)
9.	Self-employed professionals: lower grade	36.3	63.7	100 (33)
10.	Salaried professionals: lower grade	22.5	77.5	100 (342)
11.	Farmers and farm managers	3.5	96.5	100 (84)
12.	Supervisors of nonmanual employees: higher grade	2.0	98.0	100 (96)
13.	Small proprietors	2.7	97.3	100 (368)
14.	Managers in services and small administrative units	1.9	98.1	100 (203)
15.	Technicians: lower grade	0.5	99.5	100 (383)
16.	Supervisors of nonmanual employees: lower grade	2.1	97.9	100 (46)
17.	Supervisors of manual employees: higher grade	0.0	100.0	100 (501)
18.	Skilled manual workers in manufacturing: higher grade	0.1	99.9	100 (518)
19.	Self-employed workers: higher grade	0.0	100.0	100 (302)
20.	Supervisors of manual employees: lower grade	0.7	99.3	100 (275)
21.	Nonmanual employees in administration and commerce	3.5	96.5	100 (645)
22.	Skilled manual workers in manufacturing: intermediate grade	0.0	100.0	100 (386)
23.	Skilled manual workers in construction	0.2	99.8	100 (446)
24.	Smallholders without employees	1.4	98.6	100 (70)
25.	Service workers: higher grade	0.0	100.0	100 (47)

Table 17 (continued)

Occupational category	Reached University %	Did not reach University %	Total %
26. Semi-skilled manual workers in manufacturing	0.1	99.9	100 (616)
27. Skilled manual workers in transport, communications and services, and extractive industries	0.0	100.0	100 (294)
28. Service workers: intermediate grade	1.0	99.0	100 (94)
29. Self-employed workers	2.2	97.8	100 (89)
30. Skilled manual workers in manufacturing: lower grade	0.1	99.9	100 (510)
31. Agricultural workers	0.6	99.4	100 (152)
32. Semi-skilled manual workers in construction and extractive industries	0.0	100.0	100 (230)
33. Semi-skilled manual workers in transport, communications and services	0.4	99.6	100 (1020)
34. Service workers: lower grade	1.4	98.6	100 (137)
35. Unskilled manual workers	0.5	99.5	100 (373)
36. Self-employed workers: lower grade	0.0	100.0	100 (30)

Table 18

Percentage of each occupational category of adult males living in England and Wales in 1972 who received selective secondary schooling, some further education or university education

	Occupational Category	Selective Secondary Education	Some Further Education	University Education
1.	Self-employed professionals	84.4	82.3	24.0
2.	Salaried professionals: higher grade	63.2	84.7	25.0
3.	Administrators and officials: higher grade	56.0	63.5	11.5
4.	Industrial managers: large enterprises	49.3	64.1	8.7
5.	Administrators and officials: lower grade	51.0	52.6	2.1
6.	Technicians: higher grade	43.0	64.5	6.6
7.	Large proprietors	38.2	41.7	5.6
8.	Industrial and business managers: small enterprises	49.4	44.0	4.8
9.	Self-employed professionals: lower grade	78.1	93.9	36.4
10.	Salaried professionals: lower grade	62.7	83.9	22.5
11.	Farmers and farm managers	40.5	29.8	3.6
12.	Supervisors of non-manual employees: higher grade	40.4	47.9	2.1
13.	Small proprietors	22.4	28.3	2.7
14.	Managers in services and small administrative units	34.8	39.9	2.0
15.	Technicians: lower grade	12.3	39.2	0.5
16.	Supervisors of non-manual employees: lower grade	37.8	45.6	2.2
17.	Supervisors of manual employees: highe grade	12.6	32.5	0.0
18.	Skilled manual workers in manufacturin higher grade	6.4	26.1	0.2
19.	Self-employed workers: higher grade	12.5	27.1	0.0
20.	Supervisors of manual employees: lower grade	11.1	27.3	0.7
21.	Non-manual employees in administration and commerce	35.3	47.9	3.6

Table 18 (continued)

	Occupational Category	Selective Secondary Education	Some Further Education	University Education
22.	Skilled manual workers in manufacturing: intermediate grade	7.7	27.5	0.0
23.	Skilled manual workers in construction	5.3	20.8	0.2
24.	Smallholders without employees	25.0	21.4	1.4
25.	Service workers: higher grade	7.3	42.5	0.0
26.	Semi-skilled manual workers in manufacturing	6.9	15.9	0.2
27.	Skilled manual workers in transport, communications and services, and extractive industries	3.5	10.5	0.0
28.	Service workers: intermediate grade	24.4	25.5	1.1
29.	Self-employed workers: intermediate grade	18.8	22.5	2.2
30.	Skilled manual workers in manufacturing: lower grade	2.7	16.3	0.2
31.	Agricultural workers	13.5	13.8	0.7
32.	Semi-skilled manual workers in construction and extractive industries	3.2	7.8	0.0
33.	Semi-skilled manual workers in transport communications and services	6.2	13.6	0.5
34.	Service workers: lower grade	9.8	13.1	1.5
35.	Unskilled manual workers	3.2	8.3	0.5
36.	Self-employed workers: lower grade	17.2	20.0	0.0
	TOTAL	22.1	34.3	4.0

Table 19

Percentage of each occupational category of adult males living in England and Wales in 1972 who received selective secondary schooling, some further education, or university education for two age cohorts.

Occupational Category	Up to the age of 40			Over the age of 40		
	Selective Secondary Education	Some Further Education	University Education	Selective Secondary Education	Some Further Education	University Education
Self-employed professionals	90.0	87.8	29.3	80.0	78.2	20.0
Salaried professionals: higher grade	68.4	89.1	28.5	55.7	78.4	20.2
Administrators and officials: higher grade	64.8	66.0	17.0	50.0	61.8	7.8
Industrial managers: large enterprises	57.3	69.5	12.2	43.8	60.5	6.4
Administrators and officials: lower grade	50.0	50.0	1.6	53.1	57.6	3.0
Technicians: higher grade	44.7	74.2	9.7	40.2	47.1	1.1
Large proprietors	38.5	51.5	7.7	38.1	30.4	4.3
Industrial and business managers: small enterprises	52.4	54.8	7.1	46.3	33.3	2.4
Self-employed professionals: lower grade	75.0	91.7	25.0	80.0	95.2	42.9
Salaried professionals: lower grade	75.3	87.4	31.0	49.7	80.4	13.7
Farmers and farm managers	48.4	35.5	6.4	35.8	26.4	1.9
Supervisors of non-manual employees: higher grade	67.7	61.3	6.4	27.0	41.5	0.0
Small proprietors	28.1	33.1	3.4	18.7	25.1	2.2
Managers in services and small administrative units	39.5	43.0	0.8	27.9	35.4	3.7
Technicians: lower grade	15.3	44.1	0.8	6.4	29.5	0.0
Supervisors of non-manual employees: lower grade	44.4	61.1	0.0	33.3	35.7	3.6
Supervisors of manual employees: higher grade	19.4	37.4	0.0	8.7	29.8	0.0
Skilled manual workers in manufacturing: higher grade	8.4	33.5	0.4	4.1	18.1	0.0

Table 19 (continued)

Occupational Category	Up to the age of 40			Over the age of 40		
	Selective Secondary Education	Some Further Education	University Education	Selective Secondary Education	Some Further Education	University Education
Self-employed workers: higher grade	10.0	29.9	0.0	14.8	24.7	0.0
Supervisors of manual employees: lower grade	17.1	36.2	2.5	8.8	23.6	0.0
Non-manual employees in administration & commerce	46.9	55.8	5.8	23.0	39.7	1.3
Skilled manual workers in manufacturing: intermediate grade	10.5	34.8	0.0	3.8	17.0	0.0
Skilled manual workers in construction	7.7	29.1	0.5	3.1	13.3	0.0
Smallholders without employees	42.1	40.0	0.0	18.4	14.0	2.0
Service workers: higher grade	10.0	60.9	0.0	4.8	25.0	0.0
Semi-skilled manual workers in manufacturing	8.8	19.5	0.3	5.3	12.9	0.0
Skilled manual workers in transport, communications and services, and extractive industries	1.8	18.3	0.0	4.6	5.6	0.0
Service workers: intermediate grade	31.1	33.3	0.0	17.8	17.4	2.2
Self-employed workers: intermediate grade	24.4	25.6	2.3	13.6	19.6	2.2
Skilled manual workers in manufacturing: lower grade	4.0	22.0	0.0	1.8	12.0	0.3
Agricultural workers	15.9	20.0	1.4	11.4	8.5	0.0
Semi-skilled manual workers in construction and extractive industries	3.4	9.1	0.0	2.9	6.4	0.0
Semi-skilled manual workers in transport, communications and services	6.6	16.0	0.9	5.8	11.9	0.2
Service workers: lower grade	22.6	26.5	5.9	6.0	8.7	0.0
Unskilled manual workers	7.1	11.3	1.4	0.9	6.5	0.0
Self-employed workers: lower grade	36.4	33.3	0.0	5.6	11.1	0.0
TOTAL	27.4	41.2	5.6	17.5	28.2	2.6

Table 20

Percentage of each occupational category of adult males living in England and Wales in 1972 who achieved 'O' levels/School Certificate, 'A' levels/Higher School Certificate or University qualification

Occupational Category	'O' levels/ School Certificate	'A' levels/ Higher School Certificate	University Qualification
1. Self-employed professionals	64.6	24.0	26.0
2. Salaried professionals: higher grade	55.1	33.0	26.2
3. Administrators and officials: higher grade	39.5	14.1	10.5
4. Industrial managers: large enterprises	34.0	15.5	8.7
5. Administrators and officials: lower grade	24.8	9.3	2.1
6. Technicians: higher grade	29.3	19.0	6.6
7. Large proprietors	30.6	5.6	5.6
8. Industrial and business managers: small enterprises	32.1	10.7	7.1
9. Self-employed professionals: lower grade	60.6	33.3	30.3
10. Salaried professionals: lower grade	55.8	35.1	25.4
11. Farmers and farm managers	17.9	5.9	4.8
12. Supervisors of non-manual employees: higher grade	18.7	4.2	2.1
13. Small proprietors	10.9	2.4	1.6
14. Managers in services and small administrative units	27.1	9.8	1.0
15. Technicians: lower grade	7.6	1.6	0.3
16. Supervisors of non-manual employees: lower grade	23.9	6.5	2.2
17. Supervisots of manual employees: higher grade	7.2	1.0	0.4
18. Skilled manual workers in manufacturing: higher grade	4.2	0.2	0.2
19. Self-employed workers: higher grade	5.3	1.0	0.0

Table 20 (continued)

Occupational Category	'O' levels/ School Certificate	'A' levels/ Higher School Certificate	University Qualification
20. Supervisors of manual employees: lower grade	7.3	1.4	0.4
21. Non-manual employees in administration and commerce	24.3	9.0	2.3
22. Skilled manual workers in manufacturing: intermediate grade	3.9	0.8	0.0
23. Skilled manual workers in construction	4.9	0.7	0.0
24. Smallholders without employees	12.9	0.0	1.4
25. Service workers: higher grade	10.6	0.0	0.0
26. Semi-skilled manual workers in manufacturing	2.4	0.6	0.2
27. Skilled manual workers in transport, communications and services, and extractive industries	2.4	0.3	0.0
28. Service workers: intermediate grade	14.9	6.4	0.0
29. Self-employed workers: intermediate grade	7.8	2.2	1.1
30. Skilled manual workers in manufacturing: lower grade	1.8	0.2	0.0
31. Agricultural workers	4.6	0.7	0.7
32. Semi-skilled manual workers in construction and extractive industries	0.9	0.0	0.0
33. Semi-skilled manual workers in transport, communications and services	3.0	0.4	0.4
34. Service workers: lower grade	6.6	2.2	0.7
35. Unskilled manual workers	1.9	0.8	0.5
36. Self-employed workers: lower grade	3.3	3.3	0.0
TOTAL	15.3	6.4	3.9

Table 21

Percentage of each occupational category of adult males living in England and Wales in 1972 who achieved 'O' levels/School Certificate, 'A' levels/Higher School Certificate, or University Qualification for two age cohorts

Occupational Category	Up to the age of 40			Over the age of 40		
	'O' levels/ School Certificate	'A' levels/ Higher School Certificate	University Qualification	'O' levels/ School Certificate	'A' levels/ Higher School Certificate	University Qualificatic
Self-employed professionals	70.7	34.1	29.3	60.0	16.4	23.6
Salaried professionals: higher grade	62.7	41.0	28.8	46.6	21.6	22.6
Administrators and officials: higher grade	42.0	22.0	14.5	37.8	8.8	7.8
Industrial managers: large enterprises	37.8	21.9	13.4	31.4	11.3	5.6
Administrators and officials: lower grade	18.7	9.4	1.6	36.4	9.1	3.0
Technicians: higher grade	34.2	25.3	9.7	20.7	8.0	1.1
Large proprietors	30.8	7.7	7.7	30.4	4.3	4.3
Industrial and business managers: small enterprises	40.5	14.3	11.9	23.8	7.1	2.4
Self-employed professionals: lower grade	58.3	41.7	16.7	61.9	28.6	38.1
Salaried professionals: lower grade	63.2	52.3	34.5	48.2	17.3	16.1
Farmers and farm managers	22.6	9.7	9.7	15.1	3.8	1.9
Supervisors of non-manual employees; higher grade	32.3	12.9	6.4	12.3	0.0	0.0
Small proprietors	10.3	2.8	2.8	11.2	2.2	0.9
Managers in services and small administrative units	25.6	13.2	1.6	29.3	4.9	0.0
Technicians: lower grade	7.9	2.4	0.4	7.0	0.0	0.0

Table 21 (continued)

Occupational Category	Up to the age of 40			Over the age of 40		
	'O' levels/ School Certificate	'A' levels/ Higher School Certificate	University Qualification	'O' levels/ School Certificate	'A' levels/ Higher School Certificate	University Qualificatio
Supervisors of non-manual employees: lower grade	22.2	5.6	5.6	25.0	7.1	0.0
Supervisors of manual employees: higher grade	8.2	1.6	1.1	6.6	0.6	0.0
Skilled manual workers in manufacturing: higher grade	3.3	0.0	0.4	5.2	0.4	0.0
Self-employed workers: higher grade	5.6	0.6	0.0	5.1	1.3	0.0
Supervisors of manual employees: lower grade	11.2	3.7	1.2	5.6	0.5	0.0
Non-manual employees in administration and commerce	32.3	15.8	3.7	16.1	1.9	0.9
Skilled manual workers in manufacturing: intermediate grade	4.4	0.9	0.0	3.1	0.6	0.0
Skilled manual workers in construction	6.1	1.4	0.0	6.0	0.0	2.0
Smallholders without employees	30.0	0.0	0.0	6.0	0.0	2.0
Service workers: higher grade	4.3	0.0	0.0	16.7	0.0	0.0
Semi-skilled manual workers in manufacturing	2.8	0.3	0.3	2.1	0.9	0.0
Skilled manual workers in transport, communications and services and extractive industries	3.5	0.0	0.0	1.7	0.6	0.0
Service workers: intermediate grade	20.8	10.4	0.0	8.7	2.2	0.0
Self-employed workers: intermediate grade	9.3	2.3	0.0	6.5	2.2	2.2
Skilled manual workers in manufacturing: lower grade	1.8	0.5	0.0	1.7	0.0	0.0
Agricultural workers	5.7	1.4	1.4	3.7	0.0	0.0
Semi-skilled manual workers in construction and extractive industries	1.6	0.0	0.0	0.0	0.0	0.0

Table 21 (continued)

	Under the age of 40			Over the age of 40		
	'O' levels/ School Certificate	A' levels/ Higher School Certificate	University Qualification	'O' levels/ School Certificate	'A' levels/ Higher School Certificate	University Qualificatio
Semi-skilled manual workers in transport, communications and services	3.0	0.9	0.5	3.1	0.0	0.3
Service workers: lower grade	8.8	8.8	2.9	5.8	0.0	0.0
Unskilled manual workers	4.2	2.1	1.4	0.4	0.0	0.0
Self-employed workers: lower grade	8.3	8.3	0.0	0.0	0.0	0.0
TOTAL	18.2	9.9	5.5	12.6	3.3	2.6

A Comment on Halsey

by

Amartya Sen

Professor Halsey has presented an interesting picture of recent trends in education and social mobility in Britain. Within the conceptual framework that Halsey has used, his analysis seems to me to be completely convincing. Some of Halsey's conclusions are tentative in view of data limitations, and he has been careful to emphasize the uncertainties involved. Halsey has not, however, gone into an appraisal of the conceptual framework that he has used, and there are, it seems to me, some fairly important questions that can be raised about the conception of social mobility used in the analysis. The questions that I am going to raise do not detract from the value of Halsey's work, which remains valid within his framework, but the framework itself seems to me to be open to critical examination.

1. Status Categories

The concept of "status" used in this work takes the form of a linear ordering. It is a complete ranking of occupations ; between any two categories X and Y, either X is unequivocally higher or unequivocally lower than Y. But is status, in fact, a linear ordering ? There are clearly many aspects of status and they can conclict, e.g., occupation X may be more "respectable" but less "opulent" than Y. The formulation of one combined index of status involves a weighting procedure - often implicit - over these different aspects, e.g., in the scaling of Goldthorpe and Hope. Such an aggregate scale may be useful for some purposes but it also involves a significant loss of information. Since Halsey has related educational experience to occupational categories in terms of aggregate scales only (the Hall-Jones system and the Goldthorpe-Hope system), a discriminating use of different aspects of status has not been possible.

Consider the issue of the privilege of enjoying special educational facilities. The ability to buy private education relates closely to economic prosperity. In the use of the aggregate status scale this special relationship is somewhat lost. For example, Halsey finds that "the independent schools are more strongly associated with self employment that directly with occupational status", and as an example notes that "the large proprietors are the third heaviest users of the independent schools but seventh in the status order". But where do the large proprietors stand in terms of economic prosperity ? If their ranking in the opulence scale is higher, as I would expect to be the case, there will be nothing surprising in this relationship. Self-employment may be a factor too, but the different aspects of status ranking has to be checked before one can conclude firmly on this. The economic aspects of "status" obviously have a special role in the purchase of education and in the perpetuation of differentiation, and this role will not be observed if one deals only with aggregate scales of occupational "status".

In general, there is a good case for taking status not as one linear order but as several rankings reflecting different aspects of status. Relating these different rankings to educational experience will yield a richer picture than making do with an aggregate scale only. The problem is more serious with the more refined Goldthorpe-Hope categories than with the broader Hall-Jones categories, since there is more scope for conflict between different aspects in a more detailed classification.

2. Two Aspects of Social Mobility

In making comparisons over time, social mobility can be viewed as a combination of movements of people over occupation categories, and movements of occupation categories over different status positions. Halsey's analysis is concerned primarily with the first, and the status scale itself is kept stationary. But we do not know that over these years, the social and economic position of the different categories have also shifted. The pattern of relative economic prosperity of occupation categories has been changing, and there are also some noticeable developments in non-economic factors as well. Social mobility can be viewed as a combination of these two types of movements rather than simply as movements of people up and down a static ladder.

The distinction is important in terms of goals that make social mobility a desirable phenomenon. As Halsey points out much depends on the philosophy underlying one's approach to mobility, and he uses the Rawlsian concept of justice with its focus on "the least favoured" in support of his rejection of both the "older order of class" as well as "the newer order of meritocracy". The condition of the "least favoured" need not, however, change at all even when there are rapid movements between categories as long as the lowest category does not itself rise in the economic and social scale. The ultimate goals of justice and equality are not well served by movements of people alone over stationary categories.

The question is not, however, of only long run interest. Relative positions of occupational categories is a matter of immediate policy also. This is clearer in the context of economic status (involving "relativities", taxation, etc.), but applies to social standing as well. Indeed, perhaps the most interesting experiment towards social equality in this century, viz., the recent Chinese experience, has focussed sharply on the readjustment of relative positions of occupation categories both in economic and social terms.

While nothing very dramatic might have recently happened in Britain, in the relative positions of different occupation categories, still there clearly have been some changes, and the picture of social mobility must remain incomplete if we look only at movements around a static scale. One would like to see educational policy being thought out in terms of reducing gaps between the occupation categories. Halsey makes many interesting observations that are relevant to this aspect of social mobility also (though he tends rather to neglect income differentials), but unfortunately he does not go directly into the movements of categories as such.

3. Two Roles of Education in Social Mobility

Related to the two aspects of social mobility, there are two distinct roles that education can play in achieving it. One is as a vehicle of movement of people from one category to another. On this Halsey has given us a very useful analysis, contrasting the present position with the past, and clarifying what has been achieved and the limited nature of it.

The other role of education is in changing the gaps in economic and social status of different occupation categories. How have educational changes affected income differentials between categories ? (1) How has the changing educational background of different occupation categories affected their respective "social standing" ? (2) These are difficult questions, but some attempt at answering them seems to me to be necessary for understanding the role of education in social mobility more fully.

I fear that I have been a bit ungrateful in complaining about what Halsey has not done, since he has given us a lot. He has provided a very interesting and clear picture of recent trends in some aspects of social mobility and education in Britain.

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(1) Halsey refers to the controversy on the role of education in changing income distribution in America, even though he does not go into it himself. Incidentally, educational impact on the income distribution among people incorporates both the movements of people over categories and the movements of categories themselves.

(2) There is a need also to consider the changing content of education since barriers between different status groups depend on it.

Education and Social Mobility In Spain (*)

by

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INTRODUCTION

1. The Conceptual Framework in Social Mobility Studies

Ossowski (1) has studied in detail the way in which the social experience of inequality is articulated throughout history in the consciousness of the literate members of various societies. Nevertheless, the consciousness of social inequality failed to acquire practical and ideological importance until the time of the struggle between the bourgeoisie and the "ancien régime". In the beginning, sociology made this consciousness of the opposition between modern and ancient society the centre of all its conceptual models: the opposition of status to contract, community to society, persists until the Parsonian patterned variables. In contrast to the inequality and the oppression of the "ancien régime", the new bourgeois order will be legitimized by its ideal definition of the realms of freedom for essentially equal men.

Social mobility can only be considered as a fundamental and defining phenomenon of a certain type of social structure, if the dynamics of this society do not depend directly on the opposition between those above and those below, those who give orders and those who obey them, those who know and those who do not, the haves and the have nots. The conventional studies of social mobility can more easily be referred to a hierarchical conception of the social structure, in which power, knowledge and wealth are distributed along a continuous scale which can be divided, on the basis of various criteria, into different strata. Individuals are thus classified in various categories. The more or less arbitrary limits of these categories mean that such groupings cannot be viewed as subjects of historical development. Of course, the very concept of social mobility implies a stratum permeability that would differentiate the new class system from the traditional one (2).

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a) Theoretical and methodological orientation of the social mobility paradigm

It is well known that orthodox functionalism takes concepts such as plurality of status, continuity of position and permeability of strata and integrates them into the framework of a global theory of social structure (3).

Not all social mobility studies can, or will, be so summarily integrated within the purest functionalist orthodoxy, but, they would nevertheless share its fundamental orientation. One of the fundamental works on the topic, the authors of which would hardly think of themselves as functionalists, defines the problem as "related to the process by which individuals change from one position to another". The study of social mobility implies the analysis of the movement of individuals from some given position to another in the social system. The result of this process can be seen as a distribution of intelligence and knowledge so that privileges and rewards increase proportionally with the difficulty and responsibility of the tasks. Quite clearly, it is impossible to establish an "ideal" relationship between the knowledge and rewards distribution in a given society but, precisely, the approximation towards this ideal, or the failure to attain it, is what makes the study of social mobility fascinating (4).

This does not, of course, imply for Bendix and Lipset a perfect social stability. There are changes over time in the requirements of the tasks and in the "amount" of available knowledge, and both types of changes imply that the elite occupying the privileged positions must permit some form of mobility in order to keep its dominant place in society. But this very theoretical ambiguity of juxtaposing the functionalist view to a particular theory of "circulation of elites" shows the need for continuously adapting this theoretical model (mostly by "a critical empiricism") in order to be minimally in line with social reality. An example of important theoretical precisions, but still within the same orientation, can be drawn from the controversy between Davis and Moore on the one side and Tumin on the other, the latter emphasizing the dispensability and non-functionality of present social stratification (5).

The majority of investigations follow this basic theoretical direction and this can be seen in the parallel between the line of most social mobility studies and Davis and Lipset's approach; as Kreckel points out, "the great theoretical complexity of the phenomenon of mobility has been reduced, during the period of the 'boom' of mobility research, to the very special question of vertical intergenerational mobility among men, evaluated by means of a model of prestige stratification. Furthermore, there has been great interest in the measurement of the amount of vertical mobility within societies" (6).

b) Ideological connotations

Both Davis' model and more explicitly that of Lipset and Bendix imply two assumptions which are taken foregranted in certain ideological conceptions: an assumption of equivalence between the functional value of the different tasks expected from different statuses and the rewards assigned to them; and the assumption of an optimal allocation of human resources in society (7).

The functionalist legitimation of social inequality is consistent in principle at least with the basic assertions of the liberal tradition those of neo-classical economics. It is also consistent with the classic liberal ideology, in the sense that individuals are considered to be equal because they are free to prove their ability through the market. Two important considerations which link up with the more modern American conception of liberal policy, are in order here: first, that human capital may be increased through education and, therefore, individual ability is predetermined by a previous social inequality; second, that human ability has to be tested in a market already built up with a certain degree of monopoly, i.e., in an integrated system of social positions. The idea of equality is, therefore, no longer expressed as the "formal" freedom of the individual against society, nor is the optimal allocation of resources assumed. In order to reach both goals, knowledge has to be made available to every individual. Social equality can then be equated with equal opportunities to undertake the different tasks, which means equal opportunities in education.

The measurement and comparison of the degree of social mobility is meaningful within the basic liberal character of these assumptions. The two reference points are the traditional society of ascribed status, and the ideal modern society of acquired status in which equal opportunities would be a fact. The notion that this change from traditional to modern society takes place at the same time as the change from an agrarian to an industrial society is "historical law" which is perhaps most constantly assumed and developed in sociology. The degree of social mobility and the degree of industrialization in any society will follow the same path from caste society to open society. Both mobility and industrialization could be taken as milestones of this path or, if no coincidence between them were found, that could be integrated as deviance from a trend of historic normative validity. This thesis of Spencerian flavour allows the social formations to be ordered in a vectorial continuum; about its empirical validation, Lipset and Bendix conclude that "the results confirm the thesis that considers social mobility as an integral and continuous aspect of the urbanization, industrialization and bureaucratization processes"(8).

In other works, however, this complication is not clear. In Smelser and Lipset's words "there is a puzzling lack of association between indicators of economic development and measures of social mobility ...". The findings reported from the authors "so contradict the logical expectation that economic growth should result in a pattern of high upward and low downward mobility (...) that we wonder whether these negative results are a function of the methodological weaknesses suggested above" (9).

Ammasari (10), Goldthorpe (11), Duncan (12) and others cast serious doubts on this conclusion. The interesting thing here is the underlying assumption: that it is possible to compare societies at different stages of development as if there were some kind of mechanism of necessary transition teleologically oriented from one stage to the next. Even Bendix has later expressed his doubts about the possibility of studying mobility and stratification in a purely national framework, without taking into account regional differences and those arising from the international market relationships (13). It is not difficult to see the relationship between this assumption and the importance given to intergenerational mobility by scholars.

From another point of view, this assumption implies what Goldthorpe called "paraevolutionary Marxism"; the idea that industrialization and technological change have meant changes so radical in the structure of society that it is now approaching the ideal "society" similar to Marx's. At the same time the revolutionary potential Marx ascribed to the existence of two antagonistic classes is diminishing. This line of thought supports the notion of an open society which was the centre of the "convergence theory", during the 60's; "meritocracy" was seen as the form of social mobility in a perfectly open society, and "technocracy" as the model of Government in a society in which ideology was dying (14).

2. Inconsistency of the Theoretical Orientation

The conceptual and empirical orientation of research in social mobility is consistent not only with a certain liberal ideology but also with the central assumptions of the sociological orthodoxy of the fifties. Nevertheless, the empirical limits that this double consistency implies must be verifiable.

Some of the empirical limits may stem from the suspicion that the idea of a society in which all statuses are the result of personal achievement is inconsistent with the hereditary transmission of power and advantages on which industrial societies are based. Nowadays, what is valid for equal opportunities is valid a fortiori for equal educational opportunities: from access barriers to cultural barriers (15), education appears as a mechanism for the perpetuation of privileges.

If this is so, we may legitimately enquire as to why there are different degrees of mobility among societies. The thesis of a parallelism between mobility and industrialization then becomes dubious: industrial development certainly requires skilled manpower but, precisely because of that, a certain degree of social mobility can become "functional", not for the social system but for the prevailing inequality system. It may also be that social mobility softens the tensions not only because it legitimizes ideology but also because it channels aspirations to change.

3. Towards a Theoretical Re-orientation of Social Mobility Research

Both the functionalist assumptions about the value of education and the ascription of the different statuses, and the interpretation of mobility as an ideal social equality, to be attained with the progress of industrialization, are incompatible with the thesis stated above. Needless to say, this theory of social mobility being functional for the stability of the privilege system is difficult to verify empirically. It is however clear that the idea of equal opportunities has a legitimizing function; nearly all the critics of functionalism and technocratic ideology agree on this (Marcuse, Habermas, etc.). Yet, to assume that the power elite is able to perpetuate the structure of power and privilege in any circumstances and at no cost, would be to fall into the most naîve functionalism of "the whole and the completely other" (16).

The hypothesis of non-coincidence between increasing social mobility and increasing equality implies a turning point for research, about which a growing number of scientists seem to agree. Bendix has pointed out the need to look at the other side of the coin; that is "the ability of families to perpetuate their privileges" and; to analyze "the mechanisms through which power and domination and exploitation and the other things the Marxists are fond of talking about, are transmitted". The degree and means of status ascription and the extent to which they prevent both access to education and its productive utilization, cannot be reduced to the simple subjective dimension of stratification; a questioning of the mechanisms and of the compliance of the less favoured should transcend the simple social consensus or simply ignore it: the apprehension of power as an objective phenomenon is a correlative of the agreement by which power is transformed into persuasion.

The importance of education for social structure and mobility now appears in a different light. It is no longer a panacea for social inequality but rather a mechanism for perpetuating or restructuring inequalities, a means to acquire power, wealth and prestige, and to convince those exploited that their exploitation is legitimate, as shown in the symbolic representation of the status. At the same time, education is seen as a very important factor of social dynamics whose effects must be considered as multidimensional given its interrelation with other features of social change. This change of perspective requires not only a change of hypothesis but also changes in the design and analysis of social mobility studies.

4. The Liberal-functionalist Theoretical Model and Social Mobility Studies in Spain.

With some modifications, these theoretical-ideological lines hold for much of the work done in Spain (17). First of all, the historical situation of Spanish sociology meant that American models were taken over practically wholesale. Secondly, the insecure circumstances in which most of the work was done implied a technical simplicity which usually coincided with the theoretical limits of an imported philosophy. Thirdly, during the 60's the official ideology was dominated by a naïve philosophy of development (which has been called "mechanisistic materialism") in which the essential element was to increase the different levels of per capita income. If this were achieved the rest would follow automatically, and it was this "automatic follow-on" that sociology studied in its subsidiary role. Fourthly, official ideology wanted the verification of its achievements to be made on its own terrain, since the "immanent" criticism offered an excuse for deferring political questions. Where the official philosophy declared "per capita income", however, the student of empirical sociology could read "industrialisation and democracy" between the lines. The majority of these social scientists agreed that the basic implications of "future development" and "technocracy" implied that Spain could follow "other societies" in the transition from a traditional to a modern society. For all these reasons, it was only natural to set aside, temporarily at least, real historical contradictions.

Such a way of thought was soon to appear incomplete in terms of empirical results, and inappropriate to the real evolution of the society. Having said this, it is nonetheless true that to begin by assuming that inequality is a product of unequal opportunities of access to given positions, and not a result of the positions themselves; to assume a high correlation between occupation and position in society and that access to those positions is through education, so that unequal educational opportunities are responsible for social inequalities was probably the only possible way to begin sociological research given the data available to the empirical-minded sociologists. This empirical sociology disregarded and even ran counter to the real facts in a country where particularism penetrates the entire social structure, and where bureaucratic particularism is the specific way to share in the power of the middle classes where social and economic power are the monopoly of an inaccessible elite, and education is a means of reinforcing and perpetuating inequality. Where inductive rigidity was not modified by perspicacity or intuition to compensate for the bias of the indicators, the result was little more than a reinforcement of theoretical assumptions through tables interpreted "ad hoc" or some statement about the lack of validity of old prejudices about "the Spanish reality".

In fact, to equate social inequality in Spain with unequal educational opportunities was equivalent to ignoring, through either naiveté or machiavelism, the real social structure. The basic hypothesis about the functionality of a certain degree of educational mobility in the process of anarchic economic growth, as a "movement toward progress" for the purpose of keeping everything the same, is especially relevant here. A quite different matter is whether or not the sorcerer's apprentices will be able, finally, to control the forces which they themselves helped to unleash.

The Contemporary Spanish Society

This paper is a preliminary report on the first results of our work, and to place them in a more intelligible perspective, we shall start with a few remarks on some of the major contemporary changes in Spanish society and, more exactly, on how they are understood and documented by existing mobility studies (18).

The very rapid process of economic growth in Spain over the last few years has caused a tremendous transformation of the social structure, which is clearly seen in the distribution of the active population among the different sectors of the economy. Rural migration, together with the urban development it entails, and the increase of regional inequalities, have meant for agriculture the loss of manpower to the industrial and service sectors.

Changes in production necessarily imply changes in occupation, way of life and standard of living. It is possible to observe: within the upper class, the transfer of the center of gravity from the agricultural landlord-financial sector to the industrial-financial sector; in the middle class, the decreasing role (absolute and/or relative) of the traditional middle classes, many of them self-employed and correspondingly, the increasing importance of new middle classes (more and more bureaucratized) which fill the jobs generated by the development of the industrial and service sectors; in the lower strata, the transformation of agricultural labourers and small farmers into skilled or unskilled industrial workers.

Amando de Miguel, made the following comments on the trend shown in Table 1:

i. A systematic and sizable decrease in the category of agricultural labourers and a parallel increase in the number of industrial workers during the period 1860-1960, continues today.

ii. A slow decrease in the number of independent farmers and an equally slow increase in the urban middle classes during the same period.

iii. In 1950, agricultural labourers still represented the major category in the occupational scale (23%). From then on, this proportion diminishes systematically, and in 1965, they accounted for only 10% of the labour force. This is the fundamental change in the occupational revolution.

iv. With the exception of unskilled workers, who remain at the same level, there is also an increase in all non-agricultural categories during the period 1950-65.

v. In 1965, the major occupational category was that of skilled workers (non agricultural) representing 22% of the active population.

vi. All these tendencies continued during the period 1965-71, when the process of change was accelerated. The expansion of the working class sector comes to a halt, whereas there is a rapid increase in the urban middle classes.

vii. To summarize, the difference between the 1971 occupational pyramid and that of 1950 is far greater than that of the 1950 pyramid with respect to that of 1860. That is, the social change that has occurred in the space of two decades is far more important than the one taking place over the whole century(19).

The new social structure resulting from this evolution cannot be explained merely by classifying the population into three or more "stratification groups" - high, middle and low. The various attempts at such a classification give very different results, depending on the criteria used and, needless to say, on the ideological biases of the authors. Variations from 1 per cent to 20 per cent for the upper classes, from 27 per cent to 52 per cent for the middle classes and from 72 per cent to 28 per cent for the working classes have been found.

Murillo (20) made some interesting remarks on the composition and provincial distribution of "his" middle class: its proportion being much greater in the rich industrialized provinces of the North and North-East (up to 60 per cent) than in the poor agricultural provinces of the South (from 23 per cent); in the latter there is above all an "old" middle class, whose values and numerical importance are being replaced by a "new" middle class.

A more detailed picture of the new conditions prepared by Martin Martinez (21) on the basis of a comparison of three different sources leads one to suspect that Spanish economic growth has implied, above all, "gross mobility", or rather not promotions and demotions in the "social ladder", but fundamentally, essential changes in the different "steps", in their articulation and their structure.

De Miguel has attempted to study this situation using data provided by the survey of the Youth Office* (1960) and the

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(*) Instituto de la Juventud.

FOESSA reports of 1966 and 1970. We shall try to summarize his main conclusions:

- Upward mobility is greater than stability, which is in turn greater than downward mobility: 40 per cent of urban workers have an agricultural background, whereas 30 per cent of farmers will have children in the urban sector; 25 per cent of the middle classes have their origins in a working class milieu, and - the only important downward movement - 22 per cent of workers have a non-manual father (22).

- The "index of inheritance" appears to be highest among people with managerial occupations; the further up the social ladder, the higher this index, which in general is greater than in Germany, Japan or France. This leads to the conclusion that "the rate of gross mobility in Spain is due to newly created employment opportunities rather than to actual promotions and demotions" (23).

- The change from a rural to an urban situation does not imply a superior status, and only by convention can this be considered as upward mobility. The only sector responsible for the gross (and even net) mobility would then be the middle classes.

One of the co-authors of the present report held a very different view in another article. Analyzing male-intergenerational-vertical-social mobility through three generations with Madrid respondents, he stated that "transmission of family status predominates over mobility, and the pretended equality of opportunities is therefore very doubtful" (24).

Gômez Reino and Orizo take horizontal mobility as upward mobility, because of the quite different way of life (access to education and culture, etc.), in the cities. Yet, the authors' lack of ability for conceptual discrimination and their oblivion of such elementary distinctions as "collective" and "individual" mobility, structural changes and changes of the individuals within a given structure, etc., leads to a discussion of the *subjective meaning* of (geographical) "situs", (social) status and the like that can only be distorting and confusing (25).

The Expansion of the Spanish Educational System. A Brief Outline.

At the turn of the century, approximately 56 per cent of the Spanish population was illiterate. According to Census data, in 1960, illiteracy ran as high as 12.1 per cent of the total population, although for the same year, another source reports that 20 per cent of army recruits, i.e., a cohort of able young men, aged around 21, did not fit the UNESCO definition of a literate individual (26). In the 1970 Census, the corresponding figure was 8.9 per cent.

According to the same source, approximately 70 per cent of the population with some schooling have not gone beyond primary school. This figure, while revealing the low educational level may underestimate the transformation of the Spanish educational system.

Since 1925-26, the rate of enrolment has almost doubled in primary schools, it is fifteen times higher in secondary education and nearly seven times greater in higher education. The rate of increase of primary education during the period 1925-36 may be seen as the culmination of a far-reaching effort to bring "a school to each village". The maintenance of the rate (which actually declines for 1942-43) in the post-war years until 1962-63 shows a striking similarity with other economic indicators, such as the agricultural production, which only recovered its pre-war level in 1956. The improvement in educational achievements since 1962-63 (36 per cent) coincide both with the period of greater increase of per capita income, and a conscious governmental effort to extend compulsory schooling from 6 to 14 instead of 6 to 12. The fact that the population pyramid has considerably reduced its base since 1945 must also be taken into account.

There is a constant increase in secondary education: the number of pupils doubled approximately at each of the two first periods of 15 years (with a noticeable acceleration between 1930-36), and a surprisingly fast recuperation in 1942) and became four times greater in the last 17 years.

The university boom took place some years after, but the rate of increase in the last five years is twice as fast as in secondary schooling. This must have been highly surprising even for the authorities, since it has led to a considerable lack of facilities. In 1970 a major educational reform was launched with the publication of the Ley General de Educación, a law that meant a decisive attempt to renew the educational system. Since the law is still in the process of being implemented, enrolment rates are expected to increase over the next few years.

The study of the overall changes in Spanish society and the expansion of formal education is a challenge to the researcher. For the rest of this paper attention will be given to two main problems. In the first place, we shall try to explore the extent to which the Spaniards have profited differentially from these educational benefits. This is, by itself, a complex and many-sided question and the research will be limited to the influence of social origins on the educational attainments of students. Secondly, and in relation to the consequences of educational changes we shall try to estimate the effects of schooling on the occupational and economic status of the individual.

SOCIAL BACKGROUND AND EDUCATIONAL ATTAINMENT

1. Education and Father's Occupation

The first subject for discussion is the relationship between a father's occupation and the educational level of his children. Tables 1 and 2 show the relationship between these two variables. Table 1 shows the percentage composition of the different levels of education, according to the father's occupation, calculated on the basis of the 1970 Census.

The first general impression is that the inequalities are greater in the higher educational levels, especially if comparisons are made with the different size of the occupational categories (28).

By and large, the different occupational categories are represented in primary education more or less proportionately to the weight they carry in the active population (29), but their representation is inverted as the educational level increases. The proportion of children of skilled workers, which is 27.4 per cent in primary education drops to 23.0 per cent in the first cycle of secondary education. In the second cycle, their representation is 13.2 per cent and it drops to 11.4 per cent in college education, while their percentage at the university level is only 4.3 per cent.

In turn, the category of top executives and officials, whose representation in primary education is 1.2 per cent, reaches 11.6 per cent in university education, after a gradual increase through the intermediate levels (except for college education, where its representation decreases since the educational expectations for their children are those of a university education).

The extent of the inequalities becomes obvious if we group the categories and centre our attention on high-level studies. It can then be seen that although the working class represents 50.8 per cent of the active population, only 9 per cent receive a university education, whereas the children of high-level managers and civil servants, who represent 2.9 per cent of the active population, account for 25.1 per cent of university students.

Education has expanded rapidly in recent years and it would be very interesting to examine the impact of this expansion on the selection mechanisms of the educational system. Unfortunately, because of lack of data, we can do no more than outline some indicative and provisional conclusions.

With regard to this problem, we have tried to analyze the evolution over time of the percentages of college and secondary education students, classified according to the socio-economic status of their parents, during the period 1962-1970.

Table 1

Educational achievements of in-school population by occupation of the head of the household

In-flow percentages

	Kinder-garten	Compulsory primary education	Total primary	Secondary education 1st. cycle	Secondary education 2nd cycle	Post-second. non-University education	Uni-versity	Total
Landowners	0.9	1.2	1.1	1.7	2.3	2.4	2.4	1.4
Independent farmers without employees	4.9	11.1	9.9	6.4	5.8	6.5	3.1	8.7
Agricultural managers and overseers and skilled farm personnel	1.8	3.1	2.9	1.3	1.0	1.1	0.6	2.4
Agricultural labourers	6.4	12.2	11.0	3.1	1.7	1.8	0.6	8.4
Proprietors	4.3	2.8	3.1	5.2	6.1	4.7	5.9	3.8
Craftsmen and independent workers	7.4	6.4	6.6	7.8	7.0	6.9	4.6	6.8
Professionals	1.7	0.8	1.0	1.9	3.3	2.3	6.4	1.5
Business executives and top level managers (non agricultural)	2.5	1.1	1.4	2.8	4.3	2.8	6.5	2.0
Higher grades of managers, technicians and civil servants	2.3	0.9	1.2	2.2	4.1	2.3	11.6	1.9
Middle-level managers technicians and officials	6.0	2.8	3.4	6.6	10.2	13.9	11.3	4.9
Other clericals, salesmen and technicians	10.9	6.5	7.4	13.4	15.5	14.8	11.3	9.3
Foremen and similar workers	1.8	1.3	1.4	2.3	2.0	1.9	1.1	1.6
Skilled workers	30.8	26.7	27.4	23.0	13.2	11.3	4.3	24.3
Unskilled workers	6.7	9.1	8.6	4.1	2.1	1.6	0.8	7.0
Services workers	3.8	4.0	3.9	4.9	3.9	3.4	2.2	4.1
Armed forces	2.4	1.5	1.7	3.3	4.4	3.6	4.0	2.2
Other economically active persons not elsewhere classified	1.7	1.7	1.7	1.6	1.6	2.0	1.5	1.7
	100	100	100	100	100	100	100	100

Table 2

Percentage of University Students by Father's Occupation

			Labour Force	
	1962-63 (1)	1968 (2)	1970 (3)	1970 (4)
Farm owners	4.2	8.6	5.5	16.5
Farm workers	1.8	-	0.6	8.3
Proprietors of industrial, commercial and services interprises	23.0	29.6	10.5	9.4
Professional and similar	27.8	7.3	6.4	0.8
Top executives and officials	0.6	1.6	7.1	0.9
High level managers and civil servants	4.2	14.7	11.6	1.2
Middle managers, clerical and sales	28.4	29.8	23.1	13.2
Foremen and skilled workers	4.7	5.6	5.4	28.1
Labourers and unskilled workers	0.5	1.4	0.8	6.6
Service workers	0.5	1.4	2.2	7.8
Armed forces	-	-	4.0	1.1
Others (5)	4.4	-	10.4	4.2

Sources:

(1) INE, Estadistica de la Enseñanza Superior en España. Curso 1962-1963.

(2) INE, Encuesta de Equipamiento y Nivel Cultural de la Familia.

(3) Censo de la Población en España, t. III, INE. Ministerio de Planificación, 1974.

(4) Censo de la Población en España. Total Nacional, t. III. Características de la población, INE, Madrid; 1974.

(5) We have included here those originally listed as "fatherless", "Non salaried: retired rent recipients and others not in the labour force"; "Labour force participants, N.E.C."

This period was chosen because of the availability of statistics classifying university students according to the socio-economic categories of their parents.

A first reference to the Statistics of Higher Education in Spain, published annually by the National Institute of Statistics, showed that, as regards statistics for the decade 1960-1970, series of cross-tabulated data in the above-mentioned form only exist for the academic year 1962-63, and it is therefore impossible to obtain time series from this source. A similar situation exists with the Census. It would have been very useful to compare information from the 1960 Census with the 1970 Census, but the data required were only available from the latter.

Another source is the "Encuesta sobre Equipamiento y Nivel Cultural de la Familia", published in 1968, and based on a survey of 64,000 families (30).

The lack of homogeneity in the occupational categories included in each of the three sources of information used, and also the arbitrary selection of the categories should be pointed out.

Finally, it must be pointed out that for the academic year 1962-63 referred to in Statistics of Higher Education, for 15.7 per cent of university students, 6.4 per cent of those in the first cycle and 7.4 per cent of those in the second cycle of secondary education, the socio-economic category of the father was not specified. The same occurs with data obtained from the 1970 Census, which groups 12.4 per cent (for the college students) in the category of "persons economically inactive".

Bearing in mind the points mentioned so far and in view of the figures shown in Table 2, any conclusions will be of doubtful reliability.

Table 2 synthesizes the calculations, based on the three sources mentioned above, of the percentages of university students according to the socio-economic category of their parents. In order to make the information more significant, the column at the right shows the percentages of the total active population represented by the different occupational categories in 1970. The same data for 1962-63 are not available and, for this reason, the comparison can only be tentative. In an effort to homogenize, the categories have been regrouped as shown in the Table.

The two first categories, those of students with rural background were taken together. Their percentage share varies little along the time-span considered (the percentage of farm workers' children has decreased from 1.8 to 0.6 per cent and the percentage of farm workers in the active population has decreased from 40 per cent to 20 per cent approximately; the small degree of reliability of the figures would not warrant any inferences based on a change of less of one per cent.

With respect to the category of industrial entrepreneurs, the enormous fluctuation of the figures corresponding to each of the three periods analyzed would seem to indicate that the content of the categories has not remained constant. Thus, although the number of entrepreneurs has decreased relatively as a result of the economic concentration process which is taking place in Spain, this decrease cannot explain such a drastic drop in their participation in university education as that shown by the figures for 1968 and 1970 (from 29.6 per cent to 10.5 per cent).

The three categories - liberal professions, top executives and high-level managers and civil servants - were taken together, since the figures for each of them are otherwise practically unintelligible, because of lack of uniformity in the criteria used by the different sources, and also to some suspicious as regards the reliability of the coding operations. The percentages of their children at the university have decreased (from 32.80 to 25.2) while the number of college students has increased approximately 3.5 times. According to the 1970 Census, these three categories represent 2.9 per cent of the total active population, whereas 25.1 per cent of university students are children of liberal professionals, top executives and high-level managers, and civil servants, a fact which underlines the elitism of the Spanish University system.

Medium-level managers and civil servants, employees and salesmen are relatively privileged in terms of educational opportunities, since according to the 1970 Census, they represent 16.2 per cent of the active population, but 23.1 per cent of college students are the children of medium-level managers and civil servants.

Foremen and skilled and specialized workers would appear to keep their very low share (5.4 per cent) of the total university students throughout the decade. This category represents 28 per cent of the total active population. The same can be said of labourers and unskilled workers (6.6 per cent of the active population according to the 1970 Census) and for service personnel (7.8 per cent of the active population). The members of the Armed Forces (1 per cent of the active population) are clearly favoured with 4 per cent of college students. In general, it appears that the very small increase in the percentages of working class participation by no means compensates the decreases of the non-manual workers' share, but all depends on the distribution of the 12.9 per cent that appears in the three bottom categories of the 1970 column. The distribution of university students by social origins has not undergone any remarkable shift in the years considered, and the increase in schooling is proportional with the original participation (31).

Table 3 shows the same kind of data from the first and third sources quoted, for Secondary Education (32).

As far as first cycle is concerned, the most striking fact is the increase in the working-class share (from 19.7 per cent to 36.7 per cent). As far as the relative participation of the remaining categories is concerned, a noticeable decrease in all of them can be observed. It seems that the increase in the number of students from working-class families accounts for a proportion of the relative decrease in the non-working class share. In Secondary Education therefore an increase in the participation of the lower socio-economic strata can be observed.

For second cycle Secondary Education, there is a much smaller increase in the participation of working-class students than that observed for the 1st cycle. A relative increase in the share of non-working class children is also shown in Table 3. A much stronger shift in the pattern of student social background is observed in the first cycle. This trend leads to a complete stabilization of the pattern at the University level.

Table 4, which represents an alternative approximation, has also been prepared from data provided by the 1970 Census. This table gives an overall view of the educational levels attained by students according to the occupational status of their parents.

The information gained from it is very similar to that inferred from Table 1. The more privileged economic classes are under-represented in the lower educational levels (except in kindergarten) while the opposite is true for the less privileged socio-economic categories.

In 1970, the children of agricultural workers were distributed among the different levels of the educational system as follows: 90.7 per cent in primary education, 7.4 per cent in the first cycle of second-level education, 1.3 per cent in the second cycle of the same level, and 0.2 per cent in college education. At the opposite extreme, the children of top executives and officials are distributed in the educational system in such a way that, in the same year, 43.8 per cent are studying at primary level and 17.1 per cent at college level.

A measure of the influence of social origins on the educational level achieved may be drawn from the relative proportion of individuals who achieve a given level of education, i.e. the quotient among those who, with a given origin, attain a given level of education and the percentage of those who, in the total population, have attained the same level.

Table 3

Percentage of Secondary Education students (first and second level) by Father's occupation

	1st cycle		2nd cycle	
	1962-63(1)	1970(2)	1962-63(1)	1970(2)
Farm owners	11.9	9.5	8.0	9.5
Farm workers	0.6	3.1	0.9	1.7
Proprietors of industrial, commercial and services enterprises	19.1	13.4	20.7	13.8
Professional and similar	9.0	2.0	15.3	3.7
Top executives and officials	0.6	3.0	0.6	4.7
High level managers and civil servants	0.5	2.3	1.1	4.6
Middle managers, clerical and sales	30.5	20.2	32.0	26.0
Foremen and skilled workers	15.7	24.9	10.5	13.4
Labourers and unskilled workers	2.6	3.9	0.9	1.8
Service workers	0.8	4.8	0.4	3.6
Armed forces	-	3.4	-	4.8
Others (3)	8.7	12.9	9.6	17.2

Sources: (1) INE, Estadistica de la Enseñanza en España, Curso Curso 1962-63, Madrid, 1964, pp. 62-63.

(2) INE, Censo de la población en España, t. III, Madrid 1974 .

(3) The categories originally listed as "rent recipients", "fatherless", and "no data available" are included here.

Table 4

Educational achievements of in-school population by occupation of the head of the household

Out-flow percentages

	Kinder-garten	Compulsory primary education	Total primary	Secondary education 1st.cycle	Secondary education 2nd cycle	Post-second non-University education	Uni-versity	Total
Landowners	100	8.2	47.9	57.3	24.6	10.3	3.1	4.7
Independent farmers without employees	100	7.1	70.4	78.9	14.7	4.1	1.3	1.0
Agricultural managers and overseers and skilled farm personnel	100	9.8	73.2	84.4	11.5	2.7	0.8	0.6
Agricultural labourers	100	9.7	79.9	90.7	7.4	1.3	0.4	0.2
Proprietors	100	14.5	40.6	56.1	27.5	10.0	2.2	4.2
Craftsmen and independent workers	100	13.7	52.1	66.9	23.1	6.4	1.8	1.8
Professionals	100	14.6	30.5	45.6	25.7	14.0	2.7	12.0
Business executives and top level managers (non agricultural)	100	15.8	31.1	47.3	27.8	13.3	2.5	9.0
Higher grades of managers, technicians and civil servants	100	15.6	27.8	43.8	23.3	13.6	2.2	17.1
Middle-level managers, technicians and officials	100	15.6	32.2	48.5	27.1	13.0	5.0	6.4
Other clerical, salesmen and technicians	100	14.8	38.5	54.6	28.8	10.3	2.8	3.5
Foremen and similar workers	100	15.0	43.8	59.8	28.6	7.7	2.1	1.8
Skilled workers	100	15.9	59.5	76.5	18.7	3.3	0.8	0.5
Unskilled workers	100	12.2	72.	85.7	11.7	1.9	0.4	0.3
Services workers	100	11.8	52.9	67.1	24.1	5.9	1.5	1.4
Armed forces	100	13.5	36.7	51.1	29.2	12.0	2.8	4.9
Other economically active persons not elsewhere classified	100	12.9	55.2	70.1	19.5	5.8	2.1	2.5
Total	100	12.7	55.1	69.2	20.0	6.2	1.8	2.8

This quotient, which has come to be known as the "index of association", reflects the relationship between the empirical matrix of intergenerational transition and that constructed on the assumption of statistical independence between social origins and educational achievements.

Table 5 gives the values of this index in 1970 (33). It can be seen that within the rural sector there is a big cleavage between the two categories of farmers. The Census distinguishes between "agricultural entrepreneurs" with and without employees, the second category presumably including small farm owners and the different forms of share-cropping. Both categories are widely heterogeneous in their composition. Still, the differences between them are clear enough. While the educational opportunities of the children of the first are similar to those of the affluent non-agricultural categories, the situation of the children of the second is not very different from that of the children of agricultural workers. As might be expected, the children of agricultural managers are situated in a somewhat intermediate position between those of small farmers and agricultural workers.

Perhaps the most remarkable feature of Table 5 is the very small difference between agricultural workers and other manual workers, with the exception of foremen. The advantage of skilled workers over the unskilled is not very large. Both and especially the former are slightly more likely to send their children to secondary school than those working in agriculture, but other than that, the difference, always small, tends to be associated more with qualification than with geographical location. The situation of skilled workers, as far as their children's education is concerned, is pretty much the same as that of agricultural overseers and the same can be said for non-agricultural labourers and farm workers.

In primary education, the children belonging to the categories of small farmers, farm managers, agricultural workers and skilled workers and unskilled (non agricultural) workers show a value of more than 1.0. For these categories it may be said that there is a barrier to the transition from compulsory primary education to other educational levels, where they are represented less than proportionately. This under-representation becomes greater at the higher levels. Thus, the higher the educational level, the greater the inequalities in educational opportunities. The decrease in the equality of opportunities becomes more acute starting with the second level, first cycle.

There is a revealing pattern with regard to foremen and kindred workers. They send their children to secondary school in a proportion not very different from that of the lowest level of office workers. Nevertheless, their chances of obtaining a higher education for them are less than proportional and nearly half in comparison with the same group. The same pattern appears when craftsmen and small businessmen are compared with the larger entrepreneurs.

Table 5

Student's achievements by occupation of the head of the household. Ratio of actual frequencies to those expected under the assumption of independence

	Primary	Secondary 1st. cycle	Secondary 2nd cycle	Post-secondary non-university	University
Landowners	0.83	1.23	1.66	1.72	1.74
Independent farmers without employees	1.14	0.73	0.66	0.72	0.37
Agricultural managers and overseers and skilled farm personnel	1.22	0.57	0.43	0.44	0.22
Agricultural labourers	1.31	0.37	0.21	0.22	0.07
Proprietors	0.81	1.37	1.61	1.22	1.59
Craftsmen and independent workers	0.97	1.15	1.03	1.	0.70
Professionals	0.66	1.28	2.26	1.50	4.44
Business executives and top level managers (non agricultural)	0.68	1.39	2.14	1.39	3.33
Higher grades of managers, technicians and civil servants	0.63	1.16	2.19	1.22	6.3
Middle-level managers, technicians and officials	0.70	1.35	2.10	2.78	2.37
Other clerical, salesmen and technicians	0.79	1.44	1.66	1.55	1.30
Foremen and kindred workers	0.86	1.43	1.24	1.17	0.67
Skilled workers	1.11	0.93	0.53	0.44	0.18
Unskilled workers	1.24	0.58	0.31	0.22	0.11
Services workers	0.97	1.20	0.95	0.83	0.52
Armed forces	0.74	1.46	1.93	1.55	1.78
Other economically active persons not elsewhere classified	1.01	0.97	0.93	1.17	0.92

The chances of the children of medium-level clerical workers getting a secondary education are nearly the same as those for children from higher origins, but they are overrepresented at this level. The children of low-level white-collar workers get more than their proportional share at both levels, but less than the category immediately above them.

The categories of high-level managers and civil servants, liberal professions, business executives and directors and top executives and officials are overrepresented in varying degrees at the higher levels.

2. The Inheritance Factor in Education

A second aspect of the study of the relationship between schooling and social origin would be the examination of the association between the education received by parents and that received by their children. Later in this paper, we shall try to integrate both relationships in a simple pattern and to evaluate the independent contribution of the different paternal-socio-economic characteristics to the educational achievements of their children.

Figures shown in Tables 6, 7, 8 and 9 were obtained from the "Encuesta de Equipamiento y Nivel Cultural de la Familia", already quoted. Fathers were asked about the educational level attained by the son having the highest level of education if he was old enough to have been able to attain an educational level similar to that of his father.

As a consequence of these restrictions, figures shown on Tables 6 and 7 represent neither the total in-school population nor the sons of the sample interviewed. The figures should not be taken as an accurate description of distribution of two generations among the various educational levels, nor would it be correct to make comparisons between marginals to determine the changes over time. (FOESSA/70 and the "Encuesta" itself surprisingly concur in such an error). Nevertheless, the figures can be used to infer the relationship between father's and son's education, assuming that there are no systematic differences in education among the children of fathers included in different educational categories. In these tables, the diagonal represents persistency of educational level while the figures above the diagonal represent the upwardly mobile and those below the diagonal the downwardly mobile. More precisely what is shown here are the percentages of families with at least one son at an educational level equal or superior to that of the family head - figures at or above the diagonal - or percentages of families where all the children are at an educational level inferior to that of the family head. In both Tables 5 and 6, it should be remembered that, given the above mentioned assumption, upward mobility is in all likelihood over estimated and that, though the educational process of the fathers is generally finished, the education of some children may still be incomplete. That could be the case of those not at the university but included in the diagonal and above the diagonal. Some of these individuals may continue

Table 6

Son's education by father's education. Inflow percentages

Son's education

Father's education	Illiterate	Primary Education	Secondary Education	Some University	University	Total
Illiterate	100	13	1	-	-	9.6
Primary Education	-	85	74	44	31	78.5
Secondary Education	-	2	21	31	37	9.5
Some University	-	-	1	4	2	0.4
University	-	-	3	21	30	2.5
	100	100	100	100	100	
Total	(292)	(40,433)	(16,310)	(2,194)	(1,562)	(60,791)

Source: INE, Encuesta de Equipamiento y Nivel Cultural de la Familia, Madrid, 1968

Table 7

Son's education by father's education. Out-flow percentages

Father's education	Illiterate	Son's education Primary Education	Secondary Education	Some University	University	Total
Illiterate	5	92	3	-	-	100 (5,848)
Primary education	-	72	25	2	1	100 (47,728)
Secondary education	-	14	64	12	10	100 (5,495)
Some college	-	6	44	36	14	100 (225)
College	-	4	34	31	31	100 (1,495)
Total:	0.48	66.51	26.83	3.61	2.57	100 (60,791)

Source: INE, Encuesta de Equipamiento y Nivel Cultural de la Familia, Madrid, 1968

Table 8

Index of dissimilarity between father's education and son's and between son's and father's

	Supply	Recruitment
Illiterate	30.0	96.9
Primary	5.5	4.0
Secondary	53.0	12.6
Some college	61.0	45.0
College	63.0	56.6

Table 9

Son's education by father's education. Ratio of actual frequencies to those expected under the assumption of independence

Father's education	Son's education Illiterate	Primary Education	Secondary Education	Some College	College
Illiterate	10.4	1.4	0.1	-	-
Primary Education	-	1.1	0.9	0.8	0.4
Secondary Education	-	0.2	2.4	3.3	3.9
Some College	-	0.1	3.3	10.0	5.4
College	-	0.1	2.2	8.6	12.0

with their education. Consequently, our figures may very well give an inflated estimate of the true amount of persistency and, correspondingly, underestimate the upwards mobility (on the other hand, the downwards mobility should not be overestimated: below the diagonal there are only the sons with no brothers above their father's educational level).

Bearing in mind these remarks, there are some comments to be made on Tables 6 and 7. Though most illiterate parents (92 per cent) have children in or with a primary education, and a meagre 3 per cent have sons in secondary, 5 per cent of them have transmitted their illiteracy to their children; no other fathers have only illiterate children; 100 per cent of illiterates in Table 6 come from illiterate parents. From the fathers with primary education, 72 per cent have no child above their own educational level, and these represent, together with illiterate children nearly all the pupils in primary education considered in Table 6. Scarcely 3 per cent of primary school graduates have a child at the university; their relative importance in Table 6 is not difficult to understand if we consider the size of the marginals.

Of those fathers with secondary education, 14 per cent have no children beyond primary school; 64 per cent of those fathers, however, have at least one child at their own educational level, and 22 per cent send their children to university (Table 7). The latter represent here more than a third of the student population, a high proportion if compared with the 9 per cent of their fathers in the total sample.

Among the fathers with, at least some college education, 62 per cent have children with similar education, 34 per cent have no one above secondary school and 4 per cent have all children with no more than primary education. (Table 7). The corresponding inflow percentages are insignificant at primary level, but substantial at the university, especially if compared with the 2 per cent that the fathers represent in the total sample (Table 6).

The figures in Tables 6 and 7 reveal a similar pattern for all three educational levels; there is, first, a strong persistency of educational status, represented by the figures on the diagonal, and, correspondingly, low figures for mobility; and, second, the large mobility percentages appear in the levels immediately superior and inferior to that of the fathers; it is, then, much more difficult to move two levels above or below the father.

The illiterate differ from one of these common features; the greater figure is not here the diagonal, but the one for primary education; upward mobility and not persistency obtains here? But, again, the mobility of their children is a short-lived one, since access to secondary education and to university is nearly impossible.

Table 8 shows the values of the index of dissimilarity, a measure of the relative distribution, as regards origin or achievement in the different educational levels. That is to say, the sum of the positive differences between the percentage distributions in the different educational categories of individuals with the same origin and the corresponding percentages for the total sample show the greater or lesser concentration as regards the destination of individuals with the same origin in relation to the total population. If the same index is calculated by columns, a measure of the relative concentration of the origin of those who have attained a given education is obtained. Thus, an educational level with high index value as regards the recruitment of its clients attracts individuals from different origins to a more than proportional degree.

This table shows that the individuals with an intermediate level of education come from more widely differing origins, as regards their parent's education, than those situated near the extremes. Both the holders of a college degree and, in a much more pronounced manner, the illiterates, come from a much more homogeneous stratum than those situated at intermediate levels.

The pattern is similar when the phenomenon is looked at from the alternative point of view. The children of college graduates are more concentrated in their destination than the children of parents who received a secondary education, and, similarly, those whose fathers have a primary education attain a greater diversity in their education than the children of illiterate parents.

Table 9 offers some additional information about the relationship between son's and father's education. The table compares the empirical frequencies with those expected if both variables were independent.

With a single exception, the higher value corresponds to the diagonal, reflecting, once again, the weight of inheritance in the processes of status transmission.

The cells above the diagonal correspond to sons with more schooling than their fathers. It can be seen that, in the first place, here is a sizable degree of upwards mobility. The fathers with a secondary education have sent their children to college in large numbers. But those who have primary education only and, in a much more marked way, the illiterates, are under-represented both in secondary and higher education.

Even if there are downwards movements, corresponding to the cells below the diagonal, they do not, for the sons of the better educated, go beyond the level of high school. A floor and ceiling effect seems to be at work in the sorting of children through the educational system. It seems very hard for those coming from the bottom to get more than a secondary school education and almost impossible for those with the right origins to get less than a secondary education.

3. Father's Occupation and Education, and Son's Education

The associations between education of children and occupation or education of their father have been examined separately so far. The tabulations of the "Encuesta de Equipamiento" allow for some multivariate analysis.

Table 10 shows the association between father's and son's education for each professional category. Here, we can determine the influence of father's on son's education while holding constant the occupation of the father.

For all the occupational groupings the tables show similar arrangements; first, all the figures in the main diagonal are greater than one; second, most of the values higher than unity appear around the bottom of the main diagonal, while most of the low ones tend to be at the opposite end.

Yet, 10.D has a somewhat inverse disposition, since the larger figures here are on the upper part of the central and left columns and the figures on the diagonal become lower from the top to the bottom. Secondly, it can be seen that at the educational level least common for the members of one occupational category, the association is stronger, whereas at the modal levels the indexes become close to one and much lower at the surrounding cells. So, for category A, where modal education is doubtless primary, children of fathers with secondary education have 13.7 times more probabilities of attaining the same education than the rest of farm children. In category E, where secondary education is the most common, the corresponding central figure of the main diagonal is 1.1, but 1.6 at top left, and 3.0 at bottom right. In D, where higher education is the standard achievement, the few children of fathers with primary education are, again, 3.8 times more likely to get an education similar to that of their father than would be expected under the assumption of independence.

The figures show that any father, no matter what his occupation, tends to get for his sons at least the same education as he has achieved. The degree of success in doing it is shown by higher or lower figures. In general, it can be said that they are more successful if they are educationally overqualified for their occupation. It can also be stated that fathers with secondary education are successful in sending their children to the university, whereas those with primary, as we have seen in other Tables, are much more under-represented in the university than in secondary education.

As a measure of the strength of the associations, we have used Goodman and Kruskal's gamma. As indicated in Table 10, the gamma values for the relationship between father's and son's education within the eight occupation groupings are, with a couple of exceptions, fairly similar, and lower than the overall value (gamma = .88). This emphasizes a not very surprising joint effect of the education and occupation of the father on the son's schooling. Nevertheless, there are exceptions to this pattern. The association is very strong for the small farmers and agricultural workers. The gamma value in the case of unskilled and service workers is basically the same as for the grand total and not very different from the group just mentioned, and points again to the similarities already mentioned between the rural and urban lower strata. In both cases the covariation between occupation and education is too large to differentiate their joint and independent effects on the dependent variables.

Other variables may, of course, account for all these features. In the next section we shall build a model in order to try to determine the effects of some additional variables.

4. Some Multivariate Extension of the Analysis

In this section the analysis is extended by the introduction of new variables, the articulation of their relationships in several recursive models and the least-square estimation of their parameters.

Access to the original data was limited. Thus, there were not only the unavoidable shortcomings of secondary analysis but the additional burden of the lack of control over the analysis and a heavy dependency on the published results of somebody else's analysis.

The data were generally gathered for purposes other than ours and often not as carefully as we would have liked. Table 11 gives the means and standard deviations of some selected status variables based on data gathered in three different surveys, while Table 12 presents the correlation coefficients among them, on which much of the following analysis is based.

Two of the sources used were based on national samples: in the first one, an experienced private research firm carried out 4,497 interviews in 2,500 households during 1967 (34). The second, the "Encuesta de Equipamiento" of the I.N.E. (National Institute of Statistics) interviewed a national sample of 60,791 heads of households during 1968. The third body of data is a 1965 survey of a Madrid sample of 430 males (35).

Table 10

Father's and son's education, by occupation of the father

FATHER'S EDUCATION	SON'S EDUCATION Primary	Secondary	University
A. Small farmers and farm workers			
Primary	1	0.95	0.97
Secondary	0.18	13.82	-
University	-	-	-
	Gamma = .93		
B. Proprietors of industrial, commercial and farm enterprises			
Primary	1.28	1	0.53
Secondary	0.30	1.11	1.85
University	0.24	0.60	3.21
	Gamma = .68		
C. Small businessmen and independent workers			
Primary	1.07	0.92	0.75
Secondary	0.37	1.74	2.90
University	0.13	1.63	5.31
	Gamma = .72		
D. Professional, high level managers and top executives			
Primary	3.8	1.5	0.2
Secondary	1.7	1.3	0.7
University	0.4	0.9	1.2
	Gamma = .63		
E. Middle managers and clerical			
Primary	1.6	0.9	0.5
Secondary	0.5	1.1	1.3
University	0.3	0.7	3.0
	Gamma = .61		
F. Low level white-collar			
Primary	1.24	0.93	0.73
Secondary	0.24	1.66	-
University	-	-	-
	Gamma = .75		
G. Skilled workers			
Primary	1.03	0.93	0.93
Secondary	0.39	2.16	2.53
University	-	-	-
	Gamma = .69		
H. Unskilled and service workers			
Primary	1.01	0.97	0.7
Secondary	0.27	2.6	-
University	-	0.66	-
	Gamma = .87		

Table 11

Means and Standard Deviations of selected status variables

	Means			Standard Deviations		
	(1)	(2)	(3)	(1)	(2)	(3)
Q Grandfather's occupation		36.7			16.8	
T Father's education	5.1	4.9	4.7	2.4	2.2	2.3
V Father's occupation		41.1	36.1		17.3	15.8
U Respondent's education	6.3	6.8	6.1	2.8	4.3	3.2
W Respondent's occupation	41.6	42.3	38.3	11.4	17.3	
X Respondent's income						4.2
Y Son's education	8.5	8.3	8.1	3.4	2.6	3.2

Sources: (1) Fundación FOESSA, Informe Sociológico sobre la situatión social de España, Madrid, Euramérica, 1966.

(2) Encuesta de Equipamiento, op. cit.

(3) Encuesta del Instituto de la Opinión Pública, in Revista Española de la Opinión Pública, N° 0, Madrid 1966.

Table 12

Correlation coefficients for a set of status variables in four generations of Spanish males.
Estimates from three sources.

Respondent's

	Q			T			V			U			W			X			Y		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Q							72			42			50						36		
T									63		64	45		43	45			43			
V										49		49	62	61	62			47	36		
U													57	61	59			47	51	53	42
W																		60	48	52	52
X																					52
Y																					

Sources: 1) Foessa survey.
2) Encuesta de Equipamiento.
3) Instituto Opinión Pública.

The reader will be surprised by the lack of many coefficients. For different reasons access was made available to the 1967 FOESSA survey cards only. For the other two studies, all the computations had to be made from the published cross-tabulations. This has most certainly biased the estimates though, hopefully, not severely.

In all three surveys education was coded in sets of discrete categories, corresponding approximately to different levels of titulation in the Spanish educational system. For the purposes of this research it has been recoded into numbers of years of schooling. Since adequate information was not available, a panel of judges was asked to estimate the average length of schooling needed in order to reach each of the educational levels.

Occupation was also a categorical variable in each of the studies. To make things worse, there is in Spain no systematic effort to build any occupational indices. There has certainly been a considerable amount of research on "the social standing of the occupations", but, without exception such research reveals in a pronounced way, two of the traits of conventional literature on the topic: first, the selection of the occupational titles is arbitrary and biased; secondly, it covers too small a part of the labour force.

To assign a numerical score to the occupational groupings a procedure which follows closely the one devised by Bressard was followed (36). First, the different categories were ranked according to four criteria: characteristics of the family dwelling, possession of a number of certain durable goods, average instruction of those in the category and educational attainments of their offspring. The final score was the addition of all four rankings, among which there was a very high degree of concordance. (37) Income was re-coded according to the midpoint of the intervals used in the original studies.

The limitations of these procedures are evident. The original measurement error has been increased by these manipulations, with the undesirable consequence of biasing the least squares estimates. In this sense, the results should be interpreted with considerable caution and considered more as indications and hypotheses for further research than as reliable research findings. On the other hand, the consistence among independent sources, the verisimilitude of the results and its coincidence with the research in the field are reassuring.

Indeed the concordance of the correlation coefficients is noteworthy. In two cases only the association between the respondent's education and that of his father and the correlation between the education of the first and his son's education shows a sizable discrepancy. Nevertheless in both cases the national estimates are very close, showing that the deviating value is close to the Madrid study. Moreover, the computed correlation for the Madrid subsample of the INE survey is .48. It cannot be ascertained as to whether this reflects a genuine difference between two populations (Madrid and the whole country) or a methodological artifact.

The magnitude of the coefficients corresponds, roughly, to that found in other countries (U.S.A., Australia, Brazil, Germany, Puerto Rico). Though, for reasons that Duncan exposed in a well-known paper (38) this type of comparison is not altogether warranted. It should be noted that the association between the slightly different variables seems to get weaker in the more recent generations. The correlation between the respondent's father and grandfather is .72, while it has a lower value (around .60) for the association between the respondent's occupation and his father's. Similarly, the value of the correlation between the respondent's and his son's education seems to be lower than in the preceding generation. The association between the respondent's education and occupation is almost identical to that of his father.

To summarize, in the first place, the value of the correlation coefficients is, by and large, similar to that found in similar studies in other countries. In the second place, there seems to be a slight tendency over time towards a loosening of the relationship between the status variables. But neither the magnitude of the differences nor the quality of the data would warrant an over emphasis of those differences.

One basic model

The correlation coefficients in the table are the base on which the structural models presented in the following section of the paper have been built.

These models are based on the research tradition started by Blau and Duncan. (39). It is our belief that the increasing use of recursive models has been specially fruitful in the realm of mobility research, as it centres the attention on the systematic character of social inequalities and the mechanisms through which they are transmitted and perpetuated.

It has not been possible to fit all the variables into a single model since the correlations among some of the variables are lacking. A more piecemeal procedure has been adopted. Several specific models have been proposed. Though clearly related to and illuminating each other, they would deal with somewhat different problems.

The first one formalizes the relationship between five variables:

x - Respondent's income
w - " occupation
u - " education
t - " father's education
v - " father's occupation

Figure 1 is the path diagram representing the structure of the model. The figures besides the arrows connecting the variables are the estimates of the path coefficients that, in this case, are identical to the standardized multiple regression coefficients. They are, under the proper assumptions, unbiased estimates of the causal effects of the variables.

Following a conventional procedure all the coefficients less than .1 in the first estimation were taken as zero and the values of the coefficients were recalculated.

The model in Figure 1 has some interesting peculiarities and deserves a more careful examination than the one offered here.

The respondent's income, x, appears to be determined to a considerable extent by his occupation. The estimate of the path P_{wx} is larger than we would have expected from previous research on the topic. The finding would have some relevance from the point of view of the conventional theory of mobile studies and would predict for Spain a higher degree of ascription and consequently a lower value of this path and stronger effect of parental variables. There must be misgivings about this type of reasoning and an awareness of the implied trivialisation of theoretical orientations which were highly formalistic to start with. When discussing the size of the path a preliminary question must be asked: is this a regression artifact or a true structural feature of Spanish society? This is by now a moot point, especially since there is no further analysis and no access to the original tape. The distribution of income is certainly a skewed one. On the other hand there is a problem of errors of measurement. The random one would attenuate the regression parameters. There are doubts as to the reliability of the income data in this survey, and it is well known that systematic error may bias the coefficients upwards.

Far behind in quantitative importance stand P_{xu} and P_{xt}. Both the respondent's and his father's education make a significant, albeit small, contribution to the explanation of income. The fact that P_{xt} is slightly higher than P_{xu} may be surprising, but not too much attention should be paid to this given the small value of the scores.

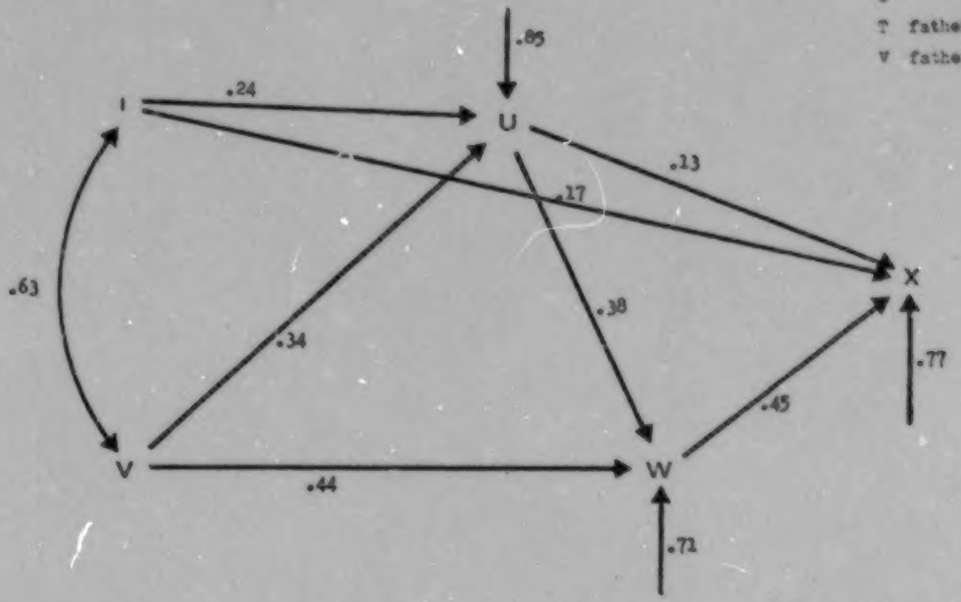

.85
T
.24
U
.13
.17
.63
.38
X
.34
.77
.45
V
.44
W
.71

Fig. 1: Path coefficients for a model of intergenerational mobility

Variables

X respondent's income
W " occupation
U " education
T father's education
V father's occupation

The size of the coefficient P_{xu} has special relevance because of the international impact of Jenck's work, and the controversy surrounding it (40). We shall simply present our findings and express our reserves about their accuracy.

P_{wv}, on the contrary, is fairly high and suggests that the father's occupation has a great influence (a bit more even than that on son's education, if we take the figures literally) on the son's occupation. Our results are consistent with those obtained by applying the original Blau and Duncan model, at least in so far as P_{wt} = zero is concerned. Yet, P_{wu} and P_{uv} are far larger in our model than in Duncan's, while P_{wv} is smaller. All this seems to suggest that our previous statement on the low ascription must be qualified. Although very influenced by occupation, income seems not to be "achieved" in so far at least as it may be transmitted through occupation (or occupational labels).

The model also enables us to make some remarks about the role of education as a factor of social mobility in Spain. De Miguel has said that the degree of occupational mobility through education in Spain has been very low, and this was supported to some extent by one of the co-authors of the present paper (41). S. del Campo and L.G. Seara agree with him in a study on the Spanish elites based on an analysis of *Who's Who.* As they state: "The prevailing function of the Spanish educational system is to *strengthen* the existing social stratification rather than to *reform* it" (42).

Orizo and Gômez Reino, on the other hand, hold education and the related low motivational and aspirational level of the industrial working classes responsible for their lack of mobility. For "owing to the professionalization process existing in any industrial country, education is required if one is to have a chance of upward mobility. Education thus becomes the most important vehicle of mobility for the working classes" (43). About the alleged low mobility of the working class, the authors conclude that it is mainly due to the inability of the working class to take advantage of educational opportunities.

Our data would support neither position. Education seems to be more than a symbolic justification of a position achieved and transmitted through mechanisms unrelated to schooling. It is true that education has little direct effect on earnings. On the other hand, education influences considerably the occupational status of the Spaniards. Furthermore, the schooling of the father has a perceptible influence on the education of his children, though not directly on their occupation.

The model, explaining 41 per cent of the variance of income does a slightly better job than some others of similar characteristics: we have been able to account for nearly 50 per cent of the variation on occupation. We are not altogether sure whether these figures reflect a structural trait of our society or are regression artifacts (in fact, the distribution of income is considerably skewed). However, mobility research does not look too bad when measured against the conventional standards of explanation in empirical research. Miller found that the average relation in the articles of the first three 1961 issues of the American Sociological Review accounted for about 10 per cent of explained variance, and Rosenthal estimated that most behavioural research is able to explain no more than 13 per cent of the variance of the dependent variables (44).

The Determinants of Education

Figure 2 gives the values of the coefficients of a path model relating the education of Spanish students to their background. The model is based on the correlations estimated from the two national surveys described above. We have relied mainly on the FOESSA study for which we have the original data. But the other study has allowed us to enlarge the model to include some variables which were absent in the FOESSA survey. In any case, concordance of the overlapping correlations is considerable.

It should be noted in the first place, that the estimates of the path P_{uw}, are very similar in this model and in the preceding one. Coincidence between both models is as clear as expected about the influence of father's occupation on respondent's occupation and education. The determination of the son's education is not very different in either model. The son's education is influenced by his father's education and occupation, just as the respondent's education in the first model was, by both paternal characteristics. However, education is now the most important factor. This fact should be stressed because the difference between both models should translate, although in a confused fashion, changes over time in the process of education transmission, bearing in mind the reservations about the mixture among generations reflected in the survey.

5. Industrialization and Mobility

Figure 3 offers the path estimates of a model relating the status of the father to the education of his son, in three different societies: Spain, Puerto Rico and the United States. Tables 13 and 14 show the correlation matrix for USA and Puerto Rico from which the path coefficients have been calculated.

Fig. 2: A model of determinants of education

Variables

Y son's education

W respondent's occupation

U " education

V father's occupation

Q grandfather's occupation

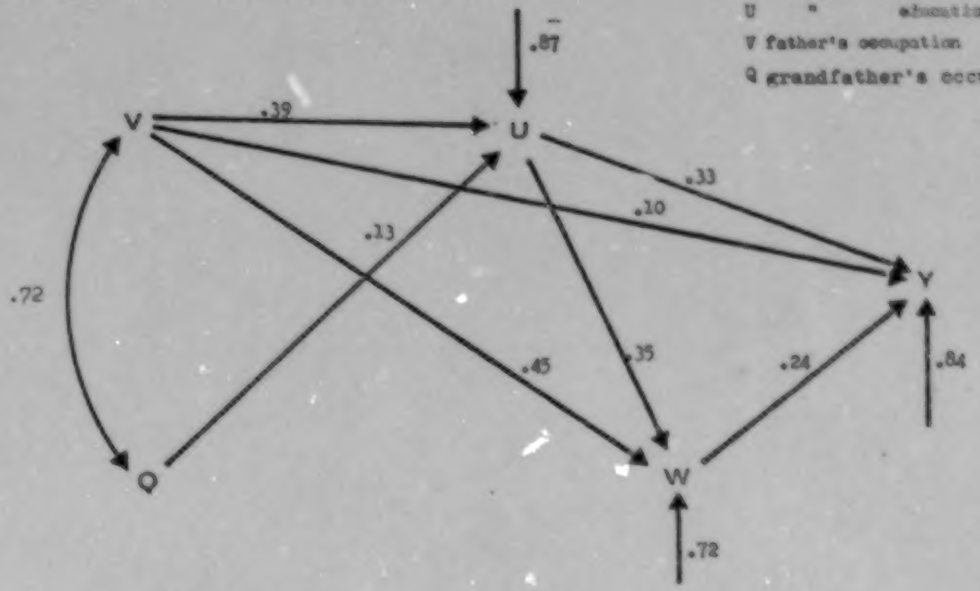
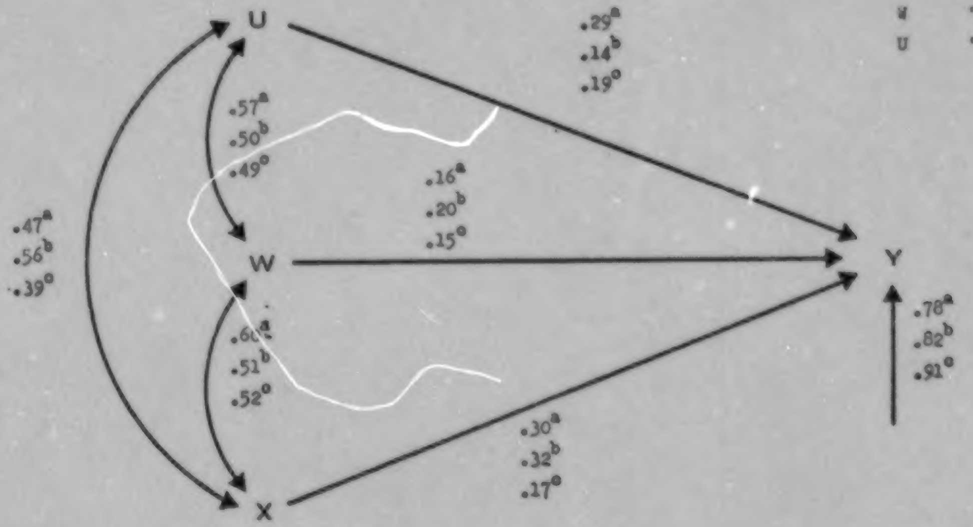

.87
V
U
.39
.33
.10
.13
.72
Y
.35
.45
.24
.84
Q
W
.72

Fig. 3: The influence of parental status on the son's education.
Path coefficients estimates for Spain, Puerto Rico and the United States.

Variables

Y son's education
X respondent's income
W " occupation
U " education


U
W
X
Y
.29a
.14b
.19c
.16a
.20b
.15c
.30a
.32b
.17c
.78a
.82b
.91c
.57a
.50b
.49c
.60a
.51b
.52c
.47a
.56b
.39c

(a) Spain
(b) Puerto Rico
(c) United States

Table 13

Correlation Matrix for the variables U,W, X, Y in U.S.A.

	U	W	X	Y
U		.49	.39	.33
W			.52	.33
X				.32
Y				

Source: W.H. Sewell, A.O. Haller, and G.W. Ohlendorf, "The educational and early occupational status attainment process: remissions and replications" in *American Sociological Review*, 1970, 35, p. 1014-1027 .

Table 14

Correlation matrix for the variables U,W, X, Y, in Puerto Rico

	U	W	X	Y
U	-	.50	.56	.47
W			.51	.44
X				.50
Y				

Source: Tumin & Feldman, *Social Class and Social Change in Puerto Rico*, 2nd ed. Indianapolis, Bobbs-Merrill, 1971, p. 534.

The United States are, of course, far more developed than the other two countries and Spain today is a wealthier and more industrialized society than Puerto Rico in the mid-fifties.

As is always the case with cross-societal comparisons, it is possible to argue endlessly about national peculiarities and common features. But our purpose is modest: to set the Spanish data in a broader context. For that we need only to assume that the comparison is not completely meaningless. In this sense, it is possible to argue that we are comparing three societies with some structural isomorphism; the present political status of Puerto Rico and the fact that it was a Spanish colony until 1898 may add some interest to the comparison.

All three product-moment correlations are most coherent in Puerto Rico; in Spain and in the States the correlation between education and income is lower than in the other two. As a general pattern, it can be seen that the correlations are, by and large, higher in Spain and lower in the U.S.A.

Looking at the tables, it is interesting to note the similarity of the zero-order correlations between education and occupation, on the one hand, and occupation-income, on the other, for Puerto Rico and USA. Both are higher in Spain, where the correlation between education and income is lower than in Puerto Rico, and higher than in the U.S.A.

Looking at the path coefficients in Figure 3, they may now suggest some interesting peculiarities, but no clear-cut pattern. The only sizable differences are the higher value of P_{uy} for Spain and a lower value of P_{xy} in the U.S. It seems clear, however, that in Spain the education of the son depends more heavily on the paternal status. That is to say, in Spain, where the status consistency (showed by the underlined higher correlations between the status variables) is higher, the inheritance factor in education (or, what is the same, the class-bias of the educational system) is more marked.

With the data contained in the "Encuesta de Equipamiento" we tried another approach. Many of the objections to international comparisons are obviated if the data of a single survey in one country with large regional differences are used. Table 15 gives the values of the zero-order correlations between the respondent's education and occupation and that of his father in twelve different regions and one additional province. It may be seen from this table that they have a remarkable similarity in nearly all of the cases. In the few deviant cases it is impossible to infer any meaningful pattern.

In a future paper, we shall pursue in detail the analysis of regional differences outlined here. The figures in Table 15 do not however promise radical departures from the national patterns described in this paper. The ubiquity of inequalities and their permanence over time surely imply a deep structural trait in Spanish society, which shows itself at the various levels, as it shapes the entire process of economic and social change.

Table 15

Correlation coefficients between education and occupation of a sample of heads of households and between the respondent's and his father's occupation, for 13 different regions

Cadiz, Huelva, Málaga, Sevilla	.60	.47
Almeria, Badajoz, Cáceres, Córdoba, Granada, Jaén	.60	.59
Albacete, Ciudad Real, Cuenca, Murcia, Toledo	.59	.61
Alicante, Castellón, Valencia	.63	.61
Madrid	.48	.61
Avila, Guadalajara, León, Salamanca, Segovia, Soria, Teruel, Zamora	.56	.56
Baleares, Barcelona, Gerona	.59	.48
Huesca, Lérida, Tarragona, Zaragoza	.61	.59
Alava, Guipúzcoa, Navarra, Vizcaya	.43	.59
Burgos, Logroño, Oviedo, Palencia, Santander, Valladolid	.56	.58
La Coruña, Lugo, Orense, Pontevedra	.60	.63
Las Palmas, Santa Cruz de Tenerife	.56	.62
Barcelona	.63	.40

Source: Encuesta de Equipamiento y Nivel Cultural.

NOTES

(1) S. Ossowski, Estructura de clases y conciencia social, Peninsula Barcelona, 1970.

(2) It would be possible to consider the alternative models of opposing classes and gradual hierarchy as purely epistemological theoretical models of varying degrees of conceptualisation for different social formations. If only because any language implies some ontology, in the sense that some beings are verbally active whereas others, selectively determined, are left in silent oblivion, such an epistemologic asceticism is hardly practicable.

(3) Kingsley Davis describes a functionalist theory of social stratification. Since society is defined as an interrelated aggregate of different positions, from the unequal importance of the different tasks for the survival of society and the scarcity of the talent at its disposal, one must conclude that society has to find a way to make both compatible, and this way is to grant people performing the more difficult tasks, a greater reward. Davis asserts that "it is not easy to say why some societies institutionalize achieved status and others do not", but where they adopt the acquired status, we will expect the more talented people to fill the more difficult positions.

(4) S.M. Lipset, R. Bendix; Movilidad social en la sociedad industrial. Eudeba, Buenos Aires, 1970 p. 18.

(5) For a review of the many articles relating this long controversy, see G.A. Huaco, "The Functionalist theory of Stratification: Two Decades of Controversy", Inquiry, Vol. IX, 1966.

(6) R. Kreckel, "Toward a theoretical reorientation of the sociological analysis of vertical mobility", in Müller, W.D., Mayer K.W., Social Stratification and Career Mobility, 1973, pag. 162.

(7) It is easy to see the economic parallel: the idea of a perfect market in which demand and supply determine automatically both the optimal allocation of resources and the right reward for the factors of production. Lipset's observation that the better situated try to retain their privileged position is in line with a monopoly situation.

(8) Lipset and Bendix, op. cit. p. 238.

(9) N.S. Smelser, & S.M. Lipset, (eds.) *Social Structure and Mobility in Economic Development*, Chicago: Aldine: 1966.

(10) Ammassari, P. "Occupational opportunity structure in advanced societies" in *Proceedings of the first Italo-Hungarian meeting of Sociology*, Rome, Centro Cultural Italia-Hungharia, 1967. "La divisione sociale del lavore e i meccanismi di controlle delle scelte professionali", *Revue internationale de sociologie*, 4:1-3. 1968. "The Italian blue-collar worker", pp. 3-21 in N.F. Dufty (ed.) *The sociology of the blue-collar worker*, Leiden, Brill, 1969.

(11) J.H. Goldthorpe, "Social stratification in industrial society", pp. 97-122 in: P. Halmes (ed.) *The development of industrial society*, Keele, Sociological Review (Monograph N° 8).

(12) O.D. Duncan, "Contingencies in constructing causal models", in E.F. Borgatta (ed.) *Sociological methodology* 1969, San Francisco, California. Jossey-Bass, 1969.

(13) R. Bendix, "Discussion", in Müller and Mayer, *op. cit*. p. 364.

(14) The ideal society, governed by merit, where functionally defined tasks will be carried on by individuals according to their ability, appears to some impenitent technocratic theoreticians, as immediately feasible; the ability and knowledge requirements (human capital) will be so fantastic in a programmed or post-industrial society, and social change will be so rapid, that intergenerational mobility will have to be secured through permanent education and constant reallocation of human resources.

(15) There is wide literature on the subject, and on the political issue of "compensatory education". See Lawton, *Social Class, Language and Education*, Routledge and Kegan Paul, London 1968. J.S. Coleman et al., *Equality of Educational Opportunity*, D.C. U.S. Government Printing Office, 1966.

(16) W.F. Hung used this phrase, in Habermas (ed.) *Respuestas a Marcuse*, Barcelona, 1971. The same meaning can be found in P. Bourdieu and J.C. Passeron, *La reproduction*, Minuit, Paris, 1970.

(17) A recent and fairly comprehensive summary of Spanish work on stratification and mobility can be found in J. Diéz Nicolás and J. del Pino-Artacho, "Estratificación y Movilidad Social en España en la Década de los años 70", en M. Fraga Iribarne et al., *La España de los Años 70, vol. I, La Sociedad*, Ed. Moneda y Crédito, Madrid, 1972.

(18) It would be impossible to list even the most important references to scientific works on changes in Spanish society since 1930, but the following may be useful. See M. Fraga Iribarne, J. Velarde Fuertes and S. del Campo Urbano (eds.), La España de los Años 70, Vol. I: La Sociedad, Vol. II: la Economía, Vol. III y IV: La Política, Ed. Moneda y Crédito, Madrid, 1972-1974.

(19) Drawn from Fundación Foessa, Informe sociológico sobre la situación social de España. Euramérica. Madrid, 1971, p. 531 (Hereafter referred to as, Foessa 70).

(20) Murillo, F. "Los problemas especificos de la clase media española", in Actas del Congreso Internacional del Instituto de clases medias, Tomo II, Madrid, 1960, p. 181-182.

(21) J.L. Martin Martinez, "La representatividad de las encuestas de opinión: Algunos aspectos importantes", Revista Española de la Opinión Pública, 1968.

(22) A. de Miguel "Analisis general de la movilidad social en España", en La Promoción Social en España. Centro de Estudios Sociales de la Santa Cruz del Valle de los Caidos. Madrid, 1966, pág. 83-110.

(23) See Foessa 70, p. 555.

(24) J. Diez Nicolas, "Motivaciones, aspiraciones e información en la promoción social", en La promoción social en España, op. cit. The author, points out that although education may be considered as an important factor in upward mobility, it may also be viewed as an instrument to reproduce and even reinforce the original family socio-economic status, thus contributing to social inequality.

(25) Andrés Orizo, F. and Gómez Reino "La movilidad social en los trabajadores", en La Promoción Social en España, p. 129.

(26) Datos y Cifras de la Enseñanza en España, 1921, Ministerio de Educación y Ciencia. Madrid.

Certainly the public expenditure on education is very low. Spain invests 2% of the gross national product instead of the average proportion of 3.7%.

An expenditure of $26 per capita is not only less than the figures for Canada, Sweden or USA but less than those for Italy or Ireland, which have an expenditure of $64 and $55 respectively.

There has been an attempt to correct this situation; recently the budget of the Ministry of Education & Science which represented less than 9% of the national product in 1963 increased to more than 16% in 1971.

From 1960 to 1970 Spain, with Yugoslavia, and Iceland has been among the first OCDE countries, in relation to the compound annual growth rate of the public expenditure in education.

(27) See: the collective work La Educaciôn en España, Centro de Estudios Sociales, Anales de Moral Social y Econômica, Madrid, 1970, as well as J.L. Romero and A. de Miguel, El Capital Humano, Confederaciôn Española de Cajas de Ahorros, Madrid, 1969, and A. de Miguel, Manual de Estructura Social de España, Tecnos, Madrid, 1974.

(28) One exception to the general pattern is pre-school education, where participation of the higher occupations is greater than in primary education; the same happens with skilled workers, in relation to agricultural workers. These socially-caused-inequalities of participation in pre-school education leave the lower occupational strata in an unfavourable position from the beginning, and this is reflected at all other educational levels.

(29) One reason for the differences between the columns is the fact that children in first cycle secondary education have normally a similar age to the older ones at primary. Thus, a high percentage at the former corresponds with a lower at the latter, and vice versa.

(30) A sample of 1,842 previously stratified sections was used, 33 dwellings with the same probabilities were chosen in each section providing for a total of around 64,000 interviews to be carried out.

It consisted of a stratified and biphasic sampling, the census being taken as the primary unit and the family as the unit to study. The purpose of the survey was to relate people to their habitat. It worked on the basis of the 1960 Census, the 1965 municipal Census and the enumerated population provided by the I.N.E. up to January 1st, 1968. The data provided by those services were not accurate due to the large internal migration taking place at that time but they provided a good means of locating the dwellings.

This survey has not been utilized in Table 6, because of the dissimilarity of its categories for secondary education to those being employed.

(31) On the origins of university students cf. S. del Campo, "La democratización de la Enseñanza Superior en España", en *Revista Española de la Opinión Pública*, N° 12, 1968, p. 31-60.

(32) There is an additional difference between sources in the fact that students included in the 1962-63 table are those who have already the corresponding diploma, whereas the 1970 table includes all students at each level. Comparing percentages might be misleading insofar as the drop-out rates are unequally distributed among the different socio-professional categories.

(33) The basis is not the total population of school age, but the total student population. With the former, index 1.0 would be given when all destination (students) groups would have the same origins as the total population (and not as the fathers of children actually in school that are the basis for our index 1.0). It would be also given when all origin groups would have the same distribution of destination as the total school age population, (and not as it is the case in our index 1.0., the same distribution of destination as the total student population). Therefore, both our over and under representation indexes may be lower than those obtained with the alternative basis discussed here.

(34) FOESSA, *Informe sociológico sobre la situación social de España*. Madrid, Euromárica, 1967.

For this survey, a sample of 2,500 households was drawn, the total number of interviews being 5,000 heads of households and housewives. It was a stratified and aleatory sampling distributed in the following levels:

1. City districts (prominent areas of more than 100,000 inhabitants)
2. Urban districts (prominent areas of less than 100,000 inhabitants)
3. Rural districts (the remainder divided in "regions" according to a distribution more natural than the strictly administrative).

The population distributions and interviews per level were distributed as follows:

PROMINENT AREAS AND REGIONS	POPULATION IN 1960	INTERVIEWS
24 CITY DISTRICTS	8,256,086	719
168 URBAN DISTRICTS	5,037,414	435
12 REGIONS	15,472,077	1,346
TOTAL:	28,765,577	2,500

(35) The survey was carried out by the "Instituto de la Opinion Publica" in 1965. Abstracts were published in *Revista Española de la Opinión Pública*. Nº 0, Madrid, 1966. 860 people older than 18 and belonging to the Madrid Municipio were interviewed. Only those interviews answered by males (430) were used in the study. Furthermore, in the first part of the study. heads of households were considered (319) and in the second and third parts, both heads of households and others of household were included.

(36) Marcel Bressard, "Mobilité Sociale et dimension de la famille", *Population* (July, 1950).

(37) We are now trying to draw up indexes by methods of canonical scoring. Our first results seem to indicate that our conclusions would be unaffected by the change in the indexing method, as the new index correlates very highly with the one we have used.

(38) O.D. Duncan, "Methodological Issues in the Analysis of Social Mobility", in N.J. Smelser and S.M. Lipset (eds), *Social Structure and Mobility in Economic Development*, Chicago: Aldine, 1966.

(39) P.M. Blau, and O.D. Duncan, *The American Occupational Structure*, John Wiley & Sons, New York, 1967, p. 170.

(40) C. Jencks, *Inequality, a Reassessment of the Effect of Family and Schooling in America*, New York, Basic Books, 1972.

(41) A. de Miguel, "Analisis general de la movilidad social", en *La promoción social en España*, *op. cit*.

J. Díez Nicolás, "Motivaciones, aspiraciones e información en la promoción social" *op. cit.*

(42) S. Del Campo, y L. Gónzalez Seara, "Análysis de un grupo de la élite española", en *La promoción social* ... *op. cit*. pp. 11-129.

(43) F.A. Orizo, & M. Gómez-Reino, *op. cit*., p. 162.

(44) Quoted in P. Derek, *Abandoning Method*, Aldine, 1974.

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Education, inequality and life chances

L'éducation, les inégalités et les chances dans la vie

VOL. 2

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THE IMPACT OF EDUCATION ON EARNINGS

L'IMPACT DE L'EDUCATION SUR LES GAINS

EDUCATION, INEQUALITY, AND LIFE INCOME:
A REPORT ON THE FEDERAL REPUBLIC OF GERMANY

by

Martin Pfaff and Gerhard Fuchs
with the assistance of Peter Köppl*

---

* The authors are Professor of Economics, Graduate Assistant, and Student-Assistant, respectively, at the Department of Economics, University of Augsburg, 8900 Augsburg, F.R. of Germany. They wish to acknowledge the advice and contributions of Professor Anita Pfaff, Dr. Sheldon Blivice, Mr. Peter Müller-Meerkatz, Mr. Walter Thiele, Mrs. Lisel Williams, Mrs. Rosalinde Buchholz and Mr. Peter Walter (all of the Department of Economics, University of Augsburg).

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Summary and Conclusions

This investigation has attempted to answer a set of questions concerned with the role of the educational system in affecting the pattern of inequality of life incomes within the Federal Republic of Germany. The following conclusions are suggested by our analysis:

1. To what degree do various social groups participate in the educational process?

   Participation in the educational process, particularly in schools of higher learning and in universities, is dependent upon the social group into which an individual is born. The educational level of the parents determines to a large degree the educational level the children are likely to attain.

2. Does the pattern of educational participation indicate that the educational system is *efficient* in so far as ensuring that gifted children, irrespective of their social origin, can attain higher social and economic positions?

   Individuals do not necessarily attain higher levels of education simply because of their abilitites. Able children among the lower social and economic strata are less likely to attain a higher level of education than those born into higher social classes. Accordingly, an individual's cognitive skills and his performance in school are not the major factors in determining the individual's likelihood of participation. Thus, one concludes that the system is inefficient since it does not utilize the most able of all social classes; hence the actual GNP is less than the potential GNP which would result from a more efficient use of human resources.

3. Does an individual's level of formal education tend to determine his life income?

   For the groups investigated, the quantity and quality of education determine to a large extent an individual's life income: The higher the level of education the higher a person's life income tends to be.

4. Does the educational system serve as an instrument to further equality; i.e., do the lower income groups benefit more from the system than the higher income groups? What are the distributive patterns of benefits and costs of this system in economic terms; i.e., who "subsidizes" whom via the educational budget?

   The analysis of the income-side of the education budget (share of taxes paid by an individual over his lifetime towards the educational budget or towards an "educational fund") and the expenditure-side (share of the costs of education chargeable over his lifetime to a particular individual who utilizes a particular quantity and quality of education) leads to the following results:

   a. Generally, those who do not participate and graduate tend to finance the educational system without receiving from the system an equivalent amount of direct benefits in the form of quantity of education consumed. The group of graduates of university-level institutions (Hochschulen and Fachhochschulen) are subsidized by the educational system. Thus it can be argued that the lower income groups tend to subsidize the higher income groups via the educational system of the Federal Republic of Germany.

   b. A non-college-educated family (for example, that of civil servants at the lowest level of service) which sends their child to higher schools, incurs a relative sacrifice for the first 14 years. Over the total life span of the father, however, the group income of father and son taken together amounts to 126% of the alternative which would have resulted in not sending the child to higher schools.

5. Do individuals over their life span repay society, in terms of relatively higher taxes, the original education investment placed in them; i.e., is the system "fair" in the sense that it places greater lifetime tax burdens on those who originally received net transfers via the educational process?

   When the norm of fairness is defined as above then one has to conclude that the tax system is relatively fair as it places relatively greater burdens on those who have received a higher net subsidy via the educational process.

6. How should the educational system be reformed so as to make it both more efficient and more equitable?

   The economic base of the system of education should be reformed so as to provide a better mix of market and nonmarket-type instruments of financing. This would be consistent with the character of education as a "mixed good", possessing the characteristics of both private and public goods.

   a. Market-type instruments: Students should be relied upon to pay for their education to a greater extent via tuition fees or outright loans made by an "educational bank". Such educational loans should be repaid out of the higher income these individuals can expect on account of their higher level of education.
      Such a system would appear to be efficient in the narrow sense that the quantity of education consumed would be based on an evaluation of marginal benefits and costs made by each individual. However, the very process of evaluation is frought with risk. Different socio-economic groups generally are able to bear different levels of risk: The wealthy are less likely to avoid the risk of not completing a program of education.
      Furthermore, and more formally, when externalities are present,market processes lead to a suboptimal supply of a public good. To the extent that education possesses public goods characteristics, it would be supplied suboptimally by the market.

Accordingly, educational reforms made solely via market-type processes are not equitable as they would tend to favor middle and upper social strata.

b. Non-market instruments: If gifted children of the lower social strata receive stipends sufficiently high so as to dissuade them from joining the labor market at an early age (and thus dropping out of school) then the system is likely to be more efficient: i.e., the system would attract and retain many of the more able students who would otherwise not have proceeded to higher education and who would have been thus a relative loss to society. The educational system is also likely to be more equitable since the net transfer element conveyed by the education budget would tend to favor the lower income groups.

c. A careful blending of market- and grants-type instruments appears to be called for. The weight given to each financing instrument would depend on the income (and, possibly, wealth) of the various groups.

I. INTRODUCTION

1. Some Controversies Pertaining to the Role of the Educational System.

The objective of achieving a more equitable distribution of income, wealth and power has gained increasing importance at a time when the chance for and even the desirability of continuing economic growth have become a subject of doubt to many. The economist is first and foremost concerned with the means through which the pattern of primary distribution of income and -- through various instruments of redistribution -- of secondary income distribution can be altered. Changing the distribution of wealth and power would entail changes in the entire economic and social system which are not likely to be realized within the prevailing order.

It is for these reasons that liberals and progressives alike attribute such an overwhelming importance to the educational system: It is viewed as an evolutionary instrument for changing the primary distribution of income. As such it should help avoid the problems even before they occur and which would otherwise have to be solved through redistribution devices.1)

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1)Empirical investigations into the de facto effects of measures of redistribution show, for example, for the United States, that the poor receive only 50 per cent of all social transfer payments. Furthermore the distribution of goods and services provided by the goverment free of charge or below cost does not necessarily favor lower income groups. Finally the hidden or implicit transfers such as those conveyed through the individual income tax laws, favor the middle and higher income classes. See K.E. Boulding and M. Pfaff (eds.), Redistribution to the Rich and the Poor: The Grants Economics of Income Distribution, Belmont, Calif.: Wadsworth Publishing Company, 1972; and K.E. Boulding, M. Pfaff and A.B.Pfaff, (eds.) Transfers in an Urbanized Economy, Belmont, Calif.: Wadsworth Publishing Company, 1973.

The educational system is thought to reduce inequality by providing an avenue for social advance to the gifted children among the lower social strata. By increasing social mobility and fostering social equality it is supposed to contribute towards harmonizing and maintaining the social and economic system. Moreover, besides these predominantly social functions, the educational system's impact on the economic system should be stressed: By providing an investment in "human capital", it influences the quantity and quality of the supply of labour. Last but not least, the educational system should be viewed not only as a means towards an end but as an end in itself: It provides a vehicle for self-fulfillment. By providing education free of charge it is hoped that greater equality of opportunity will be realized by all social strata.

However, many representatives of diverse philosophical and political schools of thought have seriously questioned the success of the educational system in achieving greater equality. In 1966 the Coleman Report suggested that in the United States the social environment of the home had a stronger impact than the school 1). Similar results were suggested by the Plowden Study in the United Kingdom 2) and the I.E.A. study of more than ten countries. 3)

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1) James S. Coleman, et al., Equality of Educational Opportunity, Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1966.

2) H.M.S.O., Children and their Primary Schools, A Report of the Central Advisory Council for Education (England): (Plowden Report), II: Research and Surveys. London: H.M. Stationery Office, 1967.

3) Torsten Husén (ed.), International Study of Achievement in Mathematics. A Comparison of Twelve Countries, Vol. I-II, Stockholm and New York: Almquist and Wicksell and Wiley, 1967.

Jensen[1] and Herrnstein[2], on the other hand, deny the impact of the social evironment. They stress the predominant impact of genetic characteristics on cognitive performance; they doubt that the educational system can, in fact, succeed as a mechanism for furthering social mobility and for equalizing opportunities. Jencks[3] further concludes that schools alter cognitive inequality only to a very limited degree and that education does not tend to foster equality but rather to perpetuate inequality. In the Marxist view, education serves to educate a share of the working class for the hierarchical structure of the capitalist society[4]. Others view the school, with its pressure to conform and the repression of individualism, as a source of alienation of the individual[5].

Even the O.E.C.D. study on the participation of social groups in the educational process concludes that educational institutions are not used to the same degree by all social groups; in fact, only a small number of particularly gifted children from the lower social strata make use of institutions of higher learning.[1] Hansen and Weisbrod show that through the distribution of benefits and costs the California University system promotes greater, and not lesser, inequality between people of different social and economic backgrounds.[2] Jencks furthermore questioned the generally accepted view that higher education actually leads to higher income.[3] He therefore calls for direct measures of redistribution of income and wealth, for family planning, subsidies for low-rent housing, etc. With this argument we return, however, to the original problem: An analysis of the distributive effect of the currently employed measures of redistribution leads to rather pessimistic results.[4]

---

[1] Arthur R. Jensen, "How Much Can We Boost IQ and Scholastic Achievement?" Harvard Educational Review, 39, No. 1, Winter 1969, pp. 1-123; and Genetics and Education, London: Methuen, 1972.

[2] Richard J. Herrnstein, "IQ", Atlantic Monthly, 228, No. 3, September 1971, pp. 44-64; and IQ in the Meritocracy, Boston: Little Brown & Co., 1973.

[3] Christopher Jencks, et al., Inequality: A Measurement of the Effect of Family and Schooling in America, New York and London: Basic Books, 1972.

[4] Samuel Bowles and Herbert Gintis, "I.Q. in the U.S. Class Structure", Social Policy, 3, No. 4-5, 65-96.

[5] Herbert Marcuse, One Dimensional Man, London: Sphere Books, 1968; Charles A. Reich, The Greening of America, London, Penguin, 1972; I.D. Illich, Deschooling Society, London: Calder and Boyars, 1972.

Before turning to an examination of some of these issues in the context of the Federal Republic of Germany, we shall briefly examine the structure of education, its constitutional foundation, and the pattern of income distribution prevalent in the Federal Republic. Thereafter the pattern of educational participation will be compared with the norms derived from the Constitution of the Federal Republic. Finally, questions pertaining to the efficiency and equity of the educational system will be explored through an analysis of the distribution of economic benefits and costs.

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[1] O.E.C.D., Group Disparities in Educational Participation and Achievement. Background Studies, No. 4 and 10. Conference on Policies for Educational Growth, Paris: OECD-Vol. IV, 1971; and T. Husén, Social Background and Educational Career, Paris, OECD, 1972.

[2] W. Lee Hansen and Burton A. Weisbrod, "The Distribution of Costs and Direct Benefits of Public Higher Education: The Case of California", in K.E. Boulding and M. Pfaff, (eds.) op.cit., pp. 77-88.

[3] C.R. Jencks, Inequality: A Measurement of the Effect of Family and Schooling in America, op.cit.

[4] K.E. Boulding and M. Pfaff, (eds.) op.cit.

2. An Overview of the Structure of the Educational System of the Federal Republic of Germany[1]

The Grundgesetz (Basic Law) of the Federal Republic of 1949 recognized the cultural autonomy of the States. It also established general binding principles for the educational system. A permanent conference of Ministers of Culture attempts to establish unity in the educational system while maintaining a federalistic independence of states. In most states we find as a rule until 1955 four years of elementary school followed by 4 to 5 years of higher elementary (secondary) school, or six years of "middle" schools (Mittelschule) or high schools.

In the Hamburg school agreement of 1964 the Chief Ministers of the States agreed to the following regulations: Obligatory school should last for at least 9 years and possibly for 10 years. For all pupils there would be a general and unified 4 year elementary school. This would be followed, according to the preference and aptitude of the pupil, by the Hauptschule, Realschule, or the Gymnasium. For working men and women night schools would offer the curriculum of the Realschule and the Gymnasium. This night programme and some full-time day schools for adults is the so called secondary path of education (2. Bildungsweg).

Apart from this system of general education there are various sequences of vocational training and education. The latter were streamlined in 1959. Accordingly, the path leads via the "Berufsaufbauschule" to the "Fachschule"; and in case of good performance to the "Fachhochschule".

---

[1] See Appendix for a summary view of the "Historical Foundations of the German Educational System".

Realschule is offered as a 6-year programme following the 4-year elementary school; or as a 4-year programme following 5th and 6th grade of elementary school (Hauptschule), which then has to include foreign language courses. The Gymnasium normally involves a 9-year programme (following the 4-year elementary school).

This structure of the German educational system is shown in Figure 1.

3. The Constitutional Foundations of the Educational System

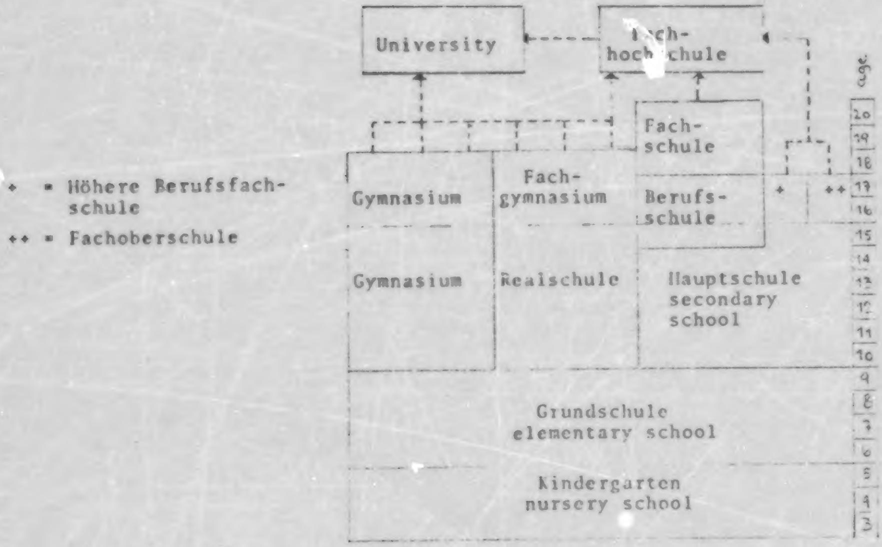
The general constitutional foundations concerning the tasks of the educational system are found in Articles 2(1) and 20 of the Constitution of the Federal Republic of Germany. Article 2(1) of the "Grundgesetz" (Basic Law) calls for provisions which enable the individual to develop his personality fully. Article 20 proclaims the goal of creating a "social form of state". Both of these principles should also be reflected in the educational system.

The provisions of Articles 7 and 12 of the Grundgesetz are more directly concerned with education: Article 12 states that all Germans should have the right to choose their occupation, place of work and education. This freedom of choice, however, implies the provision of a financial basis for such decisions. A freedom of choice curtailed by financial handicaps is hardly in accordance with the constitutional provisions of Article 12. Thus free choice of occupation can only be guaranteed, if problems of cost, location and timing of educational facilities are solved sufficiently so that everyone has access to these facilities.

The mandate for public action in the field of education can also be found in Article 7 of the "Grundgesetz", which reads, "The entire school system is subject to supervision by public authorities". (Article 7(1)). This supervision also includes

Figure 1

The Structure of the Educational System of the Federal Republic of Germany


University
Fach-
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gymnasium
Gymnasium
Berufs-
schule
+
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+ = Höhere Berufsfach-
schule
++ = Fachoberschule
Gymnasium
Realschule
Hauptschule
secondary
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Grundschule
elementary school
Kindergarten
nursery school
20
19
18
17
16
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3

Source: WEMA-Institut für Empirische Sozialforschung, Informatik und angewandte Kybernetik, Bildungswesen im Vergleich Heft 1, Materialien zur Bildungsplanung, Bonn 1974, p.11

Notes to Figure 1:

The educational system includes

- nursery schools and other pre-school facilities, such as kindergarten ("pre-school level")
- general compulsory education ("primary level" and " secondary level I")
- the vocational schools including the "Fachschule" (secondary level II")
- the Fachhochschule (Akademie),universities and technical or professional universities ("tertiary level")

1. Nursery school

The goal of pre-school education is to lay the foundations for a successful schooling. A remedial effect should be achieved particularly for socially and culturally disadvantaged children. No regular program of schooling is offered.

2. Elementary school

Elementary school is compulsory for all children. It comprises four years. Following completion of the fourth year the child may enter Realschule or Gymnasium. It is necessary that the child's parents apply for admission to those schools . Admission is followed by a 6 months to 2 years probational period depending on the regulations observed in different parts of the Federal Republic.

3. Secondary school

A five year secondary school follows the elementary school. Compared to the elementary school, secondary school has a more differentiated curriculum, which also includes one foreign language as well as the suject "labor and the economy". Following sixth and seventh grade (i.e. second or third year of secondary school) pupils may transfer to third/fourth grade of Realschule or Gymnasium. In some parts of the Federal Republic a transfer test is required. Over and beyond the usual 5 years of secondary school a "qualified level" can be achieved after one more grade, which enables the graduating pupil to enter the vocationally oriented schools,providing the entrance prerequisite for the Fachschule.

4. Realschule

Realschule is a middle level school directed towards conveying a somewhat applied general education. Realschule comprises six years and conveys the entrance qualifications for schools of the secondary level II (Berufsfachschule, Fachoberschule, Fachschule and the last years of Gymnasium).

5. Gymnasium

The Gymnasium conveys a more select secondary and intermediate level education (5th - 13th grade). It is predominantly meant as preparation and prerequisite for university admission. There are three branches of the Gymnasium, a modern language branch, a classical language branch, and a mathematical-science oriented one. Besides these main forms there are some specialised ones called (Fachgymnasium).

Notes to Figure 1 (cont.)

6. Berufsschule

   Berufsschule is compulsory for those youths who complete 5 years of secondary school and do not attend general schools or vocationally oriented secondary schools. Berufsschule (vocational school) accompanies the practical training in the company.

7. Höhere Berufsfachschule

   These schools comprise one to three year full-time programs preparing the student for business, trade or social work jobs. Some programs include the job training (e.g. technical assistents). The "qualified level" of secondary school, or often graduation from Realschule, is prerequisite for admission to these schools.

8. Fachoberschule

   This two years school usually is meant as prerequisity for admission to the Fachhochschule. The admission prerequisites involve completion of the Realschule in most parts of the Federal Republic.

9. Fachschule

   This type of school convey further training in some vocations (e.g. agriculture).

10. University and Fachhochschule

    The normal prerequisite for entering the tertiary level of education is the graduation from the Gymnasium (Abitur). Over and beyond that the Fachhochschule prerequisite is also ful filled by a student completing the Fachoberschule. The normal academic programs offered at universities vary from subject to subject between 8 and 12 semesters. The Fachhochschule usually offers 6-semester programs.

the responsibility to ensure equality of opportunity for all. This responsibility can be deduced from Article 7(4) of the "Grundgesetz", which requires that all private schools need government approval; it states that such approval will be denied, should a school further the segregation of pupils according to different economic (in particular property) positions of their parents.

Industrial societies "generally replace characteristics such as age, sex, and origin or birth by the principle of performance as a basis of social differentiation."[1] In the ideal type of a performance-oriented society, performance would be the decisive criterion for completing different levels of elementary and secondary education. It would thus be the selection criterion for enabling a student to receive more or less education.

4. The Functional and Interpersonal Distribution of Income

The Statistisches Bundesamt (Federal Bureau of Statistics) regularly publishes current data pertaining to the development of the wage share and the relative shares. From these data one can obtain a crude overview concerning the development of the labor share of income in total national income or in disposable private income. The data published in official statistics have to be nevertheless regularly and carefully reworked in order to derive statistics from them which pertain to distribution policy; this would, for example, be the case with regard to the development of the relative share of the labor households in total national income over the past ten years.[2]

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[1] Dahrendorf, Ralph: Industrielle Fertigkeiten und soziale Schichtung, in: KZSS, 1956, p. 540.

[2] See for example Goetz, R., Die Entwicklung der Einkommensverteilung in den Wachstumszyklen der BRD 1950-1971, in: Gahlen, B. (Hrsg.), Wachstumszyklen und Einkommensverteilung, Tübingen 1974, p. 1.

The official time series pertaining to the wage share versus the profit share are considerably intertwined: There are worker households which concurrently receive income from entrepreneurial activity and from property; there are selfemployed households which derive income from employment. Furthermore the official statistics do not take note of the continuing changes in the structure of employment of the Federal Republic; thus they may lead to misinterpretations. Furthermore changes in the structure of income are not considered. Nevertheless the official time series can be corrected with some effort. Thereafter a cautious interpretation made with regard to the distributional policy implications appears feasible.

Figure 2 indicates a remarkably constant net wage share which is arrived at after the employment structure has been suitably adjusted (LQNB). This appears to contradict the frequently stated contention that the distributional situation of the recipients of working income has improved considerably. Evidently this conception is based on the development of the unadjusted net wage share (LQN). Adjusted and unadjusted shares, however, show an opposite trend.

It is evident from Figure 3 that in the last 10 years there appears to be a growing gap between the gross and the net wage shares. The same incidentally can be noted for unadjusted shares. This phenomenon expresses an aspect of the distributional justice eminent in the tax system of the Federal Republic: In the process of growth more and more workers' income fall into the more progressive range of the tax schedules. Furthermore all wage shares exhibit an inverse relationship with regard to national income.[1] Table 1 shows the time series for the relevant wage shares for the period 1950-1971.[2]

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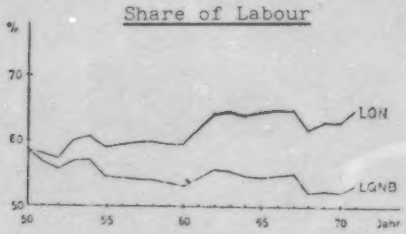
[1] See for example Knorring, E.v. and Krol, G.-J.: Lohnquote und Wachstumszyklus. Ein internationaler Vergleich, in: Gahlen, B. (Hrsg.) Ibid, p. 29.

[2] Source; Goetz, R., Ibid, p. 19.

Figure 2

A Time Series Plot of the Net Relative Share of Labour



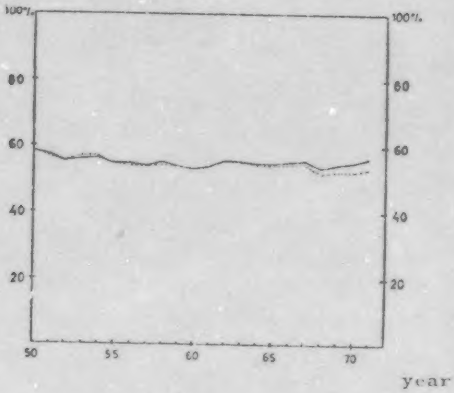
LQN-net relative share of labour

LQNB-net relative share of labour adjusted for structural changes in the labour market

Source: Götz, R., op.cit., p. 25.

Figure 3

Relative Share of Labour Adjusted for Changes in the Labour Market



——— gross relative share of labour

······ net relative share of labour

Source: Götz, R., op.cit., p. 22.

Table 1

Relative Share of Labour in Per cent

Year	Relative Share of Labour		Relative Share of Labour Adjusted for Changes in the Labour Market		Relative Share of Labour Adjusted for Changes in the Income Structure	
	Gross LQB	Net LQN	Gross LQBR	Net LQNB	Gross LQBE	Net LQNE
1950	58,4	58,6	58,4	58,6	58,8	58.6
1951	58.5	58,1	57,4	57,0	59,5	59.7
1952	57,3	57,5	55,7	55,7	60,3	60,5
1953	58,9	59,8	56,3	57,1	61,2	61,4
1954	59.9	60,7	56,4	57,2	62,1	62,2
1955	59,3	59,1	55,0	54,7	63,0	63,2
1956	59.9	59.6	54,9	54,6	63,8	64,0
1957	60,1	59,8	54,6	54,4	64,2	64,4
1958	60,9	59,9	55,2	54,3	64,4	64,6
1959	60,2	59,7	54,3	53,7	64,9	65,1
1960	60.4	59.6	53,8	53.2	65,5	65,7
1960	60.6	59,8	53,7	53,0	66,0	66,2
1961	62,2	62,0	54,6	54,4	66,6	66,8
1962	64,0	64,2	55,6	55,8	67,2	67,4
1963	64,4	64,4	55,6	55,5	67,7	68.0
1964	64,3	63,9	55,0	54,7	68,3	68,5
1965	64,7	[illegible]	55.0	54,5	68,8	69,0
1966	65,7	[illegible]	55,6	54,7	69,0	69,2
1967	65,9	[illegible]	56.0	55,0	68.9	69,1
1968	63,9	61,8	53,9	52,1	69,2	69,4
1969	65,2	62,9	54,5	52,6	69,9	70,1
1970	66,7	63,1	55,3	52,4	70,5	70,7
1971	68,7	64,8	56,5	53,3	71,0	71,3

1968 and more recent figures are provisional.
Adjusted income shares of labour were adjusted for 1950 labour market and income structures.

On the whole, however, one can only make rather limited statements concerning distributional policy on the basis of these time series. This is because of the functional nature of the official data on which these are based. Of greater interest would be data concerning the distribution of income across households or groups of households, or in other words, the personal income distribution. (See Table 1).

Unfortunately the official statistics on interpersonal distribution are published much less frequently than those on the functional distribution.

Figure 4 shows the Lorenz curve for the relative distribution of household net income for 1962/63 and 1969[1]. Evidently the pattern of this distribution is relatively stable. Furthermore one may expect that this pattern of income distribution also affects the pattern of distribution of property. Further information is contained in Table 2 - these data are based on the micro census of the Statistische Landesämter (State Bureau of Statistics)[2]. Unfortunately these statistics show only the distribution of net income. What is lacking are data about the distribution of gross income: From the difference in the distribution of gross and net income one could derive some information on the nature of the interpersonal distribution of taxes and transfers made by the public sector. The Sachverständigenrat ventures only the following unspecified guess: "From the results of the income and consumption sample we can conclude that the net income of private households was more equally distributed during the past decade than the incomes of the taxable units."[3] Thus we know relatively little about the incidence of our income tax system. On the basis of a sample from the Bavarian income tax returns of 1965 Recktenwald concludes that

---

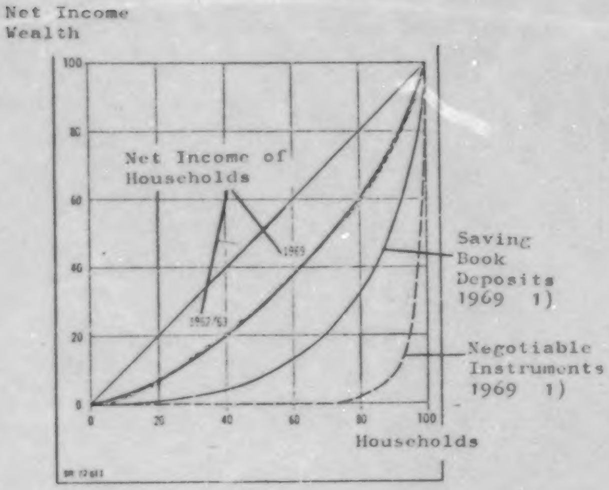
[1] Jahresgutachten des Sachverständigenrates 1972 (JG 72), p. 142.

[2] JG 72, table 36, p. 143.

[3] Ibid., para. 445, p. 142.

Figure 4

Indicators of Income Distribution



Source: Jahresgutachten des Sachverständigenrates 1972, p. 142.

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1) Estimated on the basis of data drawn from the Income and Consumer Expenditure Survey, 1969, by the Sachverständigenrat.

Table 2

Personal Income Distribution by Households: 1962/63 and 1969

	Total	Self-employed	Farmers	Civil Servants	White-Collar Workers	Blue-Collar Workers	Not in Labour Force
1962/63							
No. of Households (in thousands)	19 660	1 957	1 118	1 164	2 569	6 569	5 987
Monthly Net Income from ... to less than ... DM (percentages)							
under 600	30,9	12,3	9.7	3.2	11.4	23.1	64,0
600 - 800	21,2	12,3	13,9	16,3	17.8	33.7	14.4
800 - 1 000	17.7	12,7	18.4	20.9	21.9	24.4	9,3
1 000 - 1 200	11,2	11,2	18,3	20,1	17.1	11.5	4.9
1 200 - 1 500	9.1	14.7	18,0	20.1	16.0	5.4	4.5
1 500 - 2 000	5.8	14.3	13.8	14.4	10.6	1.7	2,0
2 000 and over	4.1	22,5	7.9	5.0	5.2	0,2	0,9
1969							
No. of Households (in thousands)	20 540	1 568	765	1 229	3 576	6 323	7 079
Monthly Net Income from ... to less than ... DM (percentages)							
under 600	14.6	2.3	4.2	0,4	1.2	3.3	37.9
600 - 800	10.0	3.6	3.0	0.5	4.8	8.2	18.1
800 - 1 000	11.7	4.5	5.8	4.5	8.6	15.3	13.4
1 000 - 1 200	12,5	6.4	11.4	10.8	11.4	19.2	8.9
1 200 - 1 500	16.5	10.1	13.1	20.0	19.4	24.9	8.0
1 500 - 2 000	17.5	19.0	27,2	28.7	26.1	20.0	7.5
2 000 - 2 500	8,6	15.9	18.1	18.8	15.1	6.3	3.0
2 500 - 5 000	7.7	30.2	16.7	16.4	12.6	2.5	2.4
5 000 - 10 000	0,8	7.9	0.3	0.1	0.7	0.0	0.1

Source: Jahresgutachten des Sachverständigenrates, p. 143.

taxes levied on taxable income lead to a more equal distribution.[1] According to his data the Gini coefficient of the income distribution falls from .564 prior to taxation to .500 after tax has been paid (i.e., by about 11.3 per cent). In the case of the wage incomes it is reduced from .316 to .307. This would support the expectation of the Sachverständigenrat. We are currently developing a simulation model on the basis of a representative sample of Bavarian wage and income tax returns of 1968, in order to shed some light on the problems of interpersonal distribution of tax burdens, tax exemptions, and transfer payments. We hope that on the basis of this model some of the open and unanswered questions could possibly be answered.

The pattern of income distribution and redistribution within the Federal Republic is most evident, however, from a more recent study of the Deutsches Institut für Wirtschaftsforschung (DIW).[2] According to this study the net national product at factor costs (= national income) of DM 526.5 billions in 1970 is distributed as shown in Figure 5(a). The gross income of employed persons amounts to DM 353.2 billions and that from entrepreneurial activity and from property to DM 173.3 billions, the sum of net wages and net salaries to DM 237.1 billions and the net income from entrepreneurial activity and property to DM 130.0 billions.

From the gross and net values we can derive some conclusions regarding the relative tax burdens of recipients of wages and salaries as well as of entrepreneurial incomes. For the former group the relative tax burden increased from 4.6 per cent of national income in 1950 to 11.4 per cent in 1970. However, the relative tax share on income from entrepreneurial activity and

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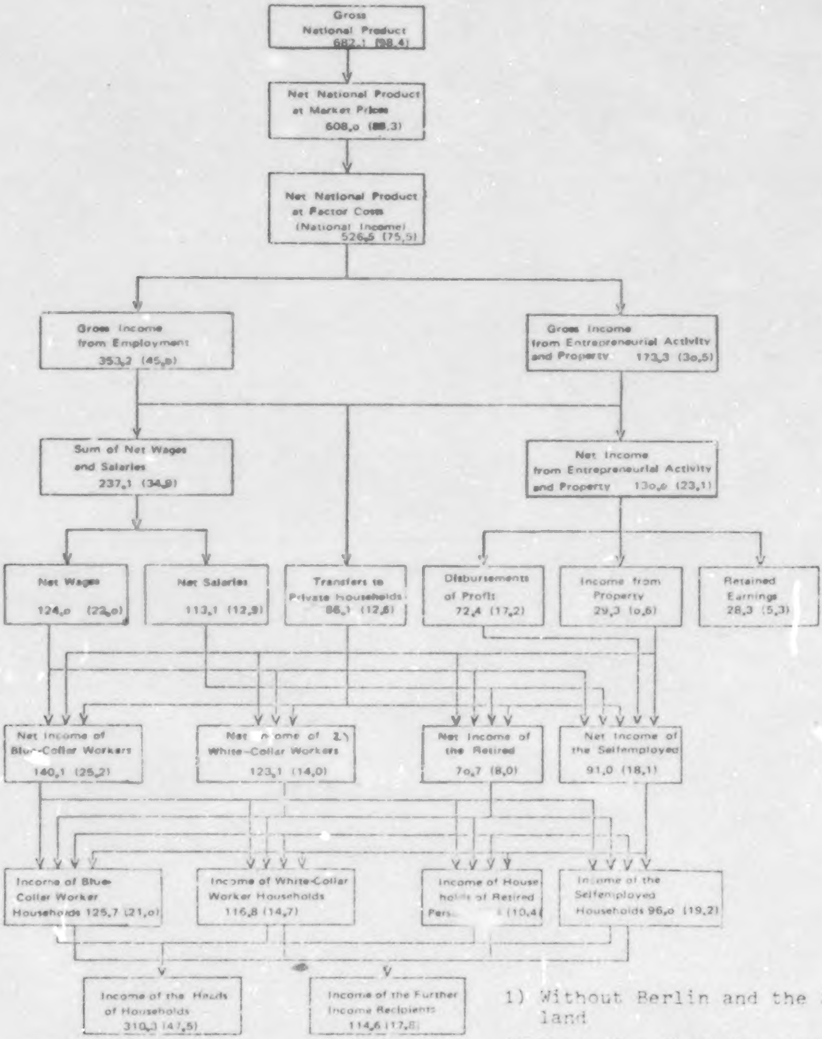
[1] Recktenwald, H.-C., Reform der Einkommensteuer, in: Geiger, W. (ed.) Der Wirtschaftende Staat, Festschrift for Theo Keller, Bern/Stuttgart, 1971, p. 179.

[2] See: Deutsches Institut für Wirtschaftsforschung (DIW), Wochenbericht 25/73, 21.6.1973, p. 217 ff.

Figure 5(a)

Income Distribution and Redistribution in the Federal Republic of Germany 1970 (1950[1])


Gross National Product 682,1 (98,4)
Net National Product at Market Prices 608,o ([illegible],3)
Net National Product at Factor Costs (National Income) 526,5 (75,5)
Gross Income from Employment 353,2 (45,o)
Gross Income from Entrepreneurial Activity and Property 173,3 (3o,5)
Sum of Net Wages and Salaries 237,1 (34,9)
Net Income from Entrepreneurial Activity and Property 13o,o (23,1)
Net Wages 124,o (22,o)
Net Salaries 113,1 (12,9)
Transfers to Private households 86,1 (12,6)
Disbursements of Profit 72,4 (17,2)
Income from Property 29,3 (o,6)
Retained Earnings 28,3 (5,3)
Net Income of Blue-Collar Workers 140,1 (25,2)
Net Income of 2) White-Collar Workers 123,1 (14,0)
Net Income of the Retired 7o,7 (8,0)
Net Income of the Selfemployed 91,0 (18,1)
Income of Blue-Collar Worker Households 125,7 (21,o)
Income of White-Collar Worker Households 116,8 (14,7)
Income of Households of Retired Pers[illegible] (10,4)
Income of the Selfemployed Households 96,o (19,2)
Income of the Heads of Households 310,3 (47,5)
Income of the Further Income Recipients 114,6 (17,8)

1) Without Berlin and the Saarland

2) Including Civil Servants

Source: Deutsches Institut für Wirtschaftsforschung (DIW) Wochenbericht 25/73, 21.6. 1973, p. 22o.

property decreased slightly from 21 per cent in 1950 to 20 per cent in 1970. However, we cannot derive from these data adequate insight into the actual tax incidence: many changes occurred in the structure of employment; and many employed derive income from property. However, the nominally progressive tax system appears to have hardly any impact on actual entrepreneurial incomes.

Of special interest in the DIW study is the distribution of heads of households according to occupation and income classes. In Figure 5(b) we note an asymetric frequency distribution which is unimodal and skewed to the right.

Furthermore, we note from Figure 5(c) the pattern of the distribution of households according to income classes, for the years 1950, 1960, and 1970: It reflects both a general increase in income over this time period, as well as a greater dispersion of households across income classes. Nonetheless, it says little about the structure of the income distribution over time.

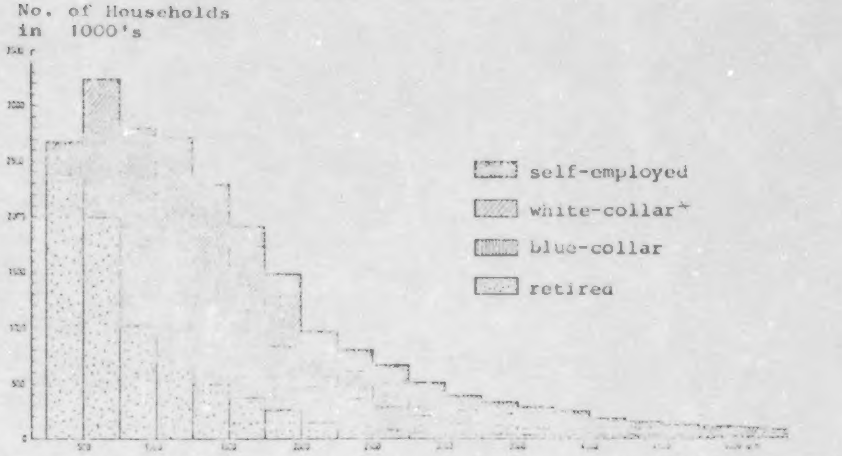
In order to make definite statements about such changes we require measures of concentration of the stratification of income over time. These are shown in Table 3:

(a) A measure of the "range of the strongest one-third" stands for the minimal income range within which one third of all households is located .

(b) The Gini coefficient compares the cumulative frequency distribution of incomes and population

Figure 5(b)

The Distribution of Households According to the Occupation of the Head of Household and According to Income Classes, 1970

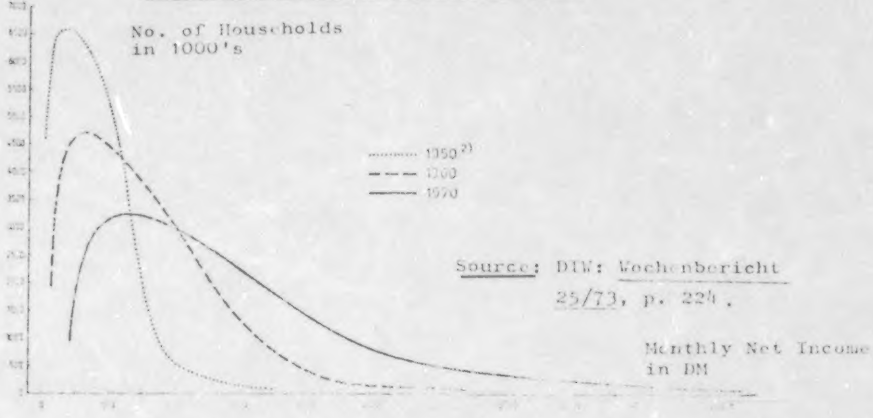


* Including Civil Servants

Source: Deutsches Institut für Wirtschaftsforschung (DIW, Wochenbericht 25/73, p.221.

Figure 5(c)

The Distribution of Households According to Income Classes (1) 1950 (2), 1960 and 1970



Source: DIW: Wochenbericht 25/73, p. 224.

1) The scale of the ordinate axis is based on a class width of DM 500.
2) Without Berlin and the Saarland.

Using the Gini coefficients we note that the pattern of income distribution became more equal the second half of the sixties. Thereafter, however, the inequality in income distribution increased. This pattern holds even though a greater trend appears towards income equalization of the income levels of homogeneous social groups.

The DIW concludes: "The increased disparity in the distribution [of income] between the social groups ... is accounted for by the larger income increases experienced by the selfemployed households as compared [to smaller increases of] other social groups".[1] It further notes that rates of increase in income are dependent on the state of the business cycle; and that the monetary income position of private households is influenced by the social transfer payments made by the state.

The pattern of income distribution described thus far, however, pertains only to cash incomes derived from the market and via public transfers. It neglects public transfers made in kind, such as goods and services provided free of charge or at a greatly reduced cost (and hence at a subsidized price). These can affect the real income and welfare position of individuals and households just as significantly as transfers made in-cash. Of these transfers made in-cash and in-kind we are particularly interested in the benefits conveyed by the educational system.

The meager macro-data presented above, unfortunately do not lend themselves readily to an analysis of the relationship between education and life incomes of different social groups. In the subsequent sections we direct our quest therefore to a more microanalytic plane: We attempt to answer the basic questions posed at the outset with sample surveys and simulations of life-patterns, representative of the major social groups.

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1) Deutsches Institut für Wirtschaftsforschung (DIW), Wochenbericht 34/73, p. 309.

Table 3

Measures of Concentration of the Stratification of Income of all Private Households in the Federal Republic of Germany

in DM

Year	Range of the strongest one-third 1)	Gini-Coefficient
1950	153	0.396
1955	239	0.384
1960	342	0.380
1964	428	0.380
1968	483	0.387
1970	588	0.392

1) Minimal income range within which one-third of the households of stratum is located.

Source: Deutsches Institut für Wirtschaftsforschung (DIW) Wochenbericht 25/73, p. 224.

II. THE DISTRIBUTION OF BENEFITS AND COSTS OF EDUCATION

1. The Distribution of Benefits: Participation

a) The Situation in High Schools (Realschulen and Gymnasien)

A survey of 150 000 high school (Gymnasium) students undertaken in 1965 showed very different participation rates for different social groups (see Table 4). Whereas civil servants constitute only 8.7 per cent of the working population, about 25.1 per cent of all 10th year Gymnasium students are children of civil servants. Blue-collar workers constitute the largest group of the population (45.2 per cent). 1)

However only 10 per cent of all 10th year "Gymnasium" students are children of blue-collar workers. In the 13th year (year of high school graduation) the relative share of children from blue-collar worker background is even less: 6.4 per cent of the high school graduates eligible for university education come from blue-collar worker background, while the share of children of civil servants has risen to 27.6 per cent. Of the working population 21 per cent are white-collar workers. Their children constitute approximately 33.6 per cent in the 10th grade and 32.0 per cent in the 13th grade.

A more recent analysis was undertaken by Schorb and Schmidbauer for the State of Bavaria. It investigated the association between the per cent of pupils graduating on to other schools and their social class status. 2) The results are shown in Figure 6(a) ('Entry into Gymnasium').

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1) See: Der Bundesminister für Bildung und Wissenschaft, Bildungsbericht 70, Bonn 1970, p. 32 .

2) See: Schorb, A.O.; Schmidbauer, M.: Aufstiegsschulen im sozialen Wettbewerb, Stuttgart 1973, pp. 37-40.

Table 4

Social Background of High School Students, 1965

Social group a) (Father's occupation)	Male and Female students covered by survey								for comparison male participants in the labour force over age 40 b)	
	10^{th} grade (6^{th} grade Gymn.)				13^{th} grade graduation class					
	all students No.	%	female No.	%	all students No.	%	female No.	%	in thousands	%
civil servant	25 225	25.1	10 855	10.8	14 559	27.6	5 622	10.6	684	8.7
white-collar worker	33 768	33.6	14 235	14.2	16 904	32.0	6 105	11.6	1 731	21.9
blue-collar worker	10 021	10.0	3 345	3.3	3 403	6.4	909	1.7	3 565	45.2
self-employed	20 598	20.5	8 812	8.8	9 655	18.3	3 714	7.1		
self-employed professionals, artists, etc.	9 055	9.0	4 134	4.1	6 565	12.4	2 690	5.1	1 770	22.5
no information available	1 821	1.8	819	0.8	1 740	3.3	650	1.2	173c)	1.7
total	100 488	100.0	42 200	42.0	52 826	100.0	19 690	37.3	7 893	
among these: university graduates	22 540	22.4	10 344	10.3	15 895	30.1	6 678	12.6		

Source: Bundesminister für Bildung und Wissenschaft: Bildungsbericht 70, Bonn 1970, p. 32.

a) The data are derived from a survey of more than 150 000 students in public and private high schools (Gymnasium), May 15, 1965.

b) Mikrozensus, April 1966; not including members of the armed forces .

c) Helping family members.

Figure 6(a)

Transfers to Realschule by Social Class of Parents 1969/70 1) 2)

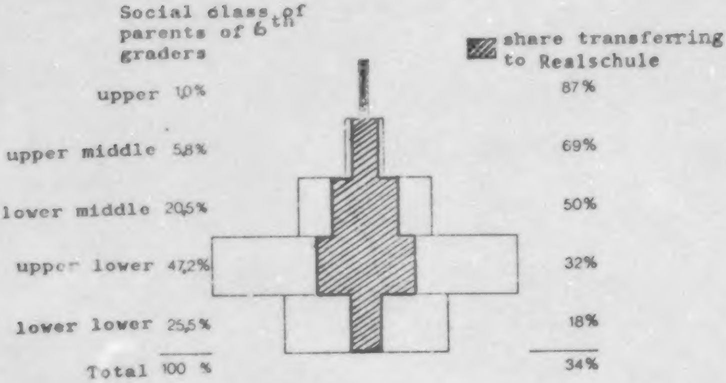
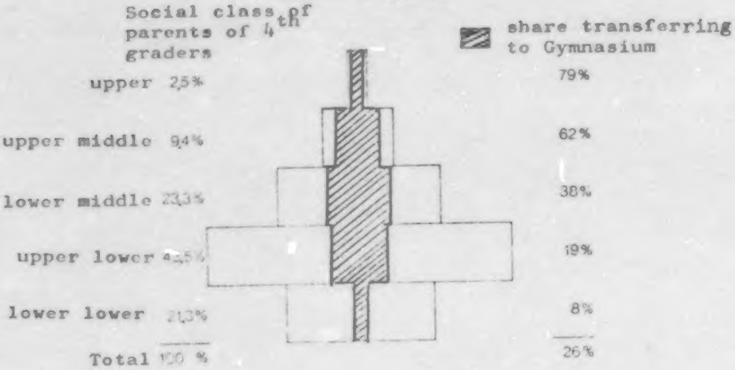


Figure 6(b)

Transfers to Gymnasium by Social Class of Parents 1969/70 1) 2)



1) Source: Schorb, A.O, Schmidbauer, M: op. cit., p. 37.

2) The classifications "upper", "upper middle", etc. were derived through the evaluation process outlined in Figure 6(c).

Figure 6(c)

The Assignment to Social Classes

Social class of pupils	occupational groups
upper (U)	self-employed in leading positions self-employed professionals
upper middle (UM) - (U + UM)	self-employed in intermediate positions top level civil servants top level white-collar workers farmers with very big farms
lower middle (LM)	self-employed in lower positions specially qualified white-collar workers higher level civil servants farmer with big farms
upper lower (UL)	white-collar workers without supervisory functions skilled laborers lower and middle level civil servants farmers with small and medium sized farms
lower lower (LL)	unskilled and semiskilled blue-collar workers

The following system[*] of points was used to formulate the five social classes:

blue-collar workers:	
unskilled worker	1 P
semiskilled worker	4 P
skilled worker	12 P
white-collar workers:	
w.-col. workers without supervisory functions	10 P
specially qualified w.-col. workers	16 P
top level white-collar workers	24 P
civil servants:	
lower and middle level civil servants	10 P
higher level civil servants	16 P
top level civil servants	23 P

self employed (excluding farmers)	
self-employed in lower position	15 P
self-employed in intermediate positions	20 P
self-employed in leading positions	30 P
farmers:	
farmers with small farms (less than 7,5 ha)	10 P
farmers with middle sized farms (7,5 ha - 15 ha)	13 P
farmers with big farms (15 - 30 ha)	18 P
farmers with very big farms (over 30 ha)	23 P

upper	25 P and over
upper middle	20 - 24
lower middle	15 - 19
upper lower	10 - 14
lower lower	up to 9

Source: Schorb, A.O., Schmidbauer M.: *op.cit.*, p.36.

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[*] This system represents a slightly modified version of the one developed by Erwin K. Scheuch and Hansjürgen Dahein: " Sozialprestige und soziale Schichtung" in: René König (ed.) Soziale Schichtung und soziale Mobilität, (Special issue of Zeitschrift für Soziologie und Sozial-Psychologie), Köln, 1961 pp 65 - 105.

For a detailed exposition on the problem of social classes see Karl Martin Bolte, Dieter Kappe, Friedheim Neidhardt: "Soziale Schichtung", Opladen, 1966.

It shows clearly, that " according to the composition of its first grade, the Gymnasium is characterized by a predominance of the upper class and upper middle class".[1]

The analysis reveals further that the Realschule is a more likely avenue of education for pupils of lower social background than the Gymnasium. However, even here we find in the first grade of Realschule an over-representation of the upper class. (See Figure 6(b))

In evaluating school attendance patterns for 1963/64 and 1969/70, Schorb and Schmidbauer conclude: "A comparison of the 5th grade in the year 1963/64 and the approximately identical 10th grade in the year 1969/70 of the Gymnasium shows that the percentage of upper class and upper middle class children has increased considerably whereas the percentage of lower class children has declined."[2]

A similar if weaker pattern could be noted for the Realschule and Wirtschaftsschule. "The opportunity for success of blue-collar worker and farm children is greater in the Realschule and Wirtschaftsschule than in the Gymnasium".[3]

b) The Situation at Universities

The summary of the following section hardly provides much surprise: It indicates an over-representation of the upper social strata. So far the elimination of social and group-specific bias has not been achieved.

The Federal Government admits to this fact in its report on the economic and social provision of university education (May 16, 1974).

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[1] Schorb, A.O. , Schmidbauer, M.: op.cit., p.37.

[2] Ibid., pp. 46-47.

[3] Ibid., p. 48.

Even though the percentage of children of parents without a university education in general and of blue-collar workers in particular increased it does not seem to indicate a major turning point (see Tables 5 to 7): The number of university students has increased by a factor of 5 during the last 20 years. The expansion in higher education - caused mainly by the promotion of education in the early sixties - resulted mainly in the higher rate of participation of children from families without university education. The traditionally education-minded groups had been participating actively even before. This pattern can be illustrated by some basic data: The parent generation, 5 per cent of whom graduated from high school (completed their Abitur) cannot provide the 20 per cent of the students, who graduated now from high school. However, more detailed investigations indicate that the traditional differences continue to influence the decision as to the further education of the children. A case in point is the decision for children to enter the Gymnasium. The special survey of the Statistisches Landesamt (Bavarian Bureau of the Census) included in the Micro Census of June 1972 indicated that 67.4 per cent of all children between 10 and 15 whose head of family graduated from high school, in turn, study at the Gymnasium. On the other hand 74.9 per cent of the children between 10 and 15 whose head of family completed secondary school (Hauptschule) only, in turn, studied at secondary schools."[1]

Table 8 illustrates the pattern of the relationship between social group and percentage of university students and the change of this pattern over time. It is evident that between 1954 and 1972/73 the relatively strong position of the children of civil servants has been reduced in favor of children from blue-collar worker background (whose percentage increased from 4.9 per cent to 12.5 per cent).

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[1] Der Bundesminister für Bildung und Wissenschaft: Bericht der Bundesregierung über die wirtschaftliche und soziale Sicherung des Studiums, Bundesdrucksache 7/2116, May 16, 1974, p. 17.

Table 5

Distribution of German University Students by Fathers' Occupation

father's occupation	academic year 1)	% of male participants in the labour force over age 40	students					
			total		students' fathers			
					university graduates		not univers. graduates	
			No.	%	No.	%	No.	%
civil servants	1954	.	39 977	37,4	14 727	13,8	25 250	23,6
	1966	8,7	80 156	30,9	42 794	16,5	37 362	14,4
white-collar workers	1954	.	25 244	23,7	5 644	5,3	19 600	18,4
	1966	21,9	82 039	31,7	20 658	8,0	61 381	23,7
self-employed	1954	.	35 835	33,6	11 398	10,9	24 287	22,7
	1966	22,5	76 567	29,5	30 363	11,7	46 204	17,8
among them: farmers	1954	.	4 970	4,6	325	0,3	4 645	4,3
	1966	.	7 344	2,8	533	0,2	6 811	2,6
blue-collar workers	1954	.	5 246	4,9	.	.	5 246	4,9
	1966	45,2	14 865	5,7	.	.	14 865	5,7
no information available	1954	.	439 2)	0,4	44	0,0	262	0,2
	1966	1,7	5 830 2)	2,2	1 135	0,4	2 879	1,1
total	1954	.	106 791	100,0	32 013	30,0	74 651	[illegible]
	1966	100,0	258 457	100,0	[illegible]	36,6	162 691	[illegible]

1) Winter semester.

2) Including students for whom no information was available about father's occupation and/or educational experience.

Source: Statistisches Bundesamt, große Hochschulstatistik, Mikrozensus 1966.

Table 6

Male Participants in the Labour Force and First Year Students by Fathers' Occupation

father's occupation	male participants in the labour force (census 1970)	students commencing studies during the winter semester 1967/68	1971/72
civil servant	9,9	27,1	24,7
white-collar worker	25,2	32,5	34,4
blue-collar worker	51,1	8,9	12,5
self-employed	12,0	29,4	25,8
helping family member	1,8	0,0	0,0
no information available	-	2,1	2,6
total	100,0	100,0	100,0

Source: Statistisches Bundesamt, *Große Hochschulstatistik*, Mikrozensus 1966.

Table 7

Distribution of First-Year University Students by Occupation of Father

occupation of father	first-year-students of all universities	
	1967/68	1971/72
1. University graduates	28.5	21.3
among these: civil servants and judges	12.9	10.3
among these: teachers	5.8	4.9
self-employed	9.4	6.1
among these: doctors, dentists, veterinarians	5.4	3.0
2. not university graduates	70.6	78,0
among these: civil servants	14.2	14.4
among these: higher service	6,2	5.7
middle and lower service	5,1	6.3
white-collar workers	26.6	29,7
among these:in top level positions	5.8	4.6
blue-collar workers	8.9	12,5
among these: skilled workers, employed craftsmen	6,0	8.4
semiskilled workers	1.9	3.1
self-employed	20.0	19,7
among these: farmers	3.4	4.0
craftsmen	4.5	4.5
businessmen	9.5	7.9
3. no information	0.9	0.6

Source: Bundesminister für Bildung und Wissenschaft, Bericht der Bundesregierung über die wirtschaftliche und soziale Sicherung des Studiums, Bonn 1974, p. 18.

Table 8

Distribution of Students/First-Year Students by Fathers' Occupation: A Comparison over Four Academic Years

father's occupation	academic year	mail participants in the labor force	students* / first year students+
civil servant	1954		37.4% *
	1966	8,7%	30.9% *
	1967/68	1970: 9,9%	27.1% +
	1971/72		24.7% +
white-collar worker	1954		23.7% *
	1966	21,9%	31.7% *
	1967/68	1970: 25,2%	32.5% +
	1971/72		34.4% +
blue-collar worker	1954		4.9% *
	1966	45,2%	5.7% *
	1967/68	1970: 51,1%	8.9% +
	1971/72		12.5% +
self-empolyed	1954		33.6% *
	1966	22,5%	29.5% *
	1967/68	1970: 12,0%	29.4% +
	1971/72		25.8% +

However, from 1966 to 1970 the percentage of male blue-collar workers increased from 45.2 per cent to 51.1 per cent. In spite of the fact that 12.5 per cent of all students come from blue-collar worker background this does not suggest that the educational development is neutral with regard to social strata, if we consider that approximately one half of the male working population in 1970 are blue-collar workers.

Thus we can conclude from the analysis of the higher educational system that the participation in higher education is very strongly dependent on the social position of the parents.

c) Academic Performance as a Secondary Factor

(i) The impact of social background on performance

Poor vocabulary, language barriers, and inexperience are the starting point for explaining differences in educational participation.

Educational reforms such as the active support of gifted children of all groups has not been successful in achieving equal opportunity for all social groups: "Even with the same quality of education a child from a lower class background can hardly keep up with a child from the middle or upper social class. Children from lower social strata lack the educational opportunities that are naturally open to middle class children outside school or other educational institutions, particularly during their formative years. These advantages range from discussions and books at home to vacations and other form of self-fulfillment and no doubt are of great import in their lives in and outside of school. As long as poor pupils depend entirely on the school system for their education and development of their activities they will always be at a disadvantage compared to children from middle and higher class background".1)

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1) Illich, I.: Ein Plädoyer für die Abschaffung der Schule, in: Kursbuch 24, Verlag Wagenbach, Berlin 1971, pp.5-6.

(ii) The Impact of Academic Performance on Participation

Quite apart from the educational opportunities provided outside of school to middle class children, different tendencies to participate in further education can be observed in children with similar educational achievements but drawn from different social backgrounds.

A study of the Statistisches Landesamt (Bureau of the Census) of Baden-Württemberg showed that in 1972 94.7 per cent of all children of parents with a university education who showed good grades in school decided to enter a Gymnasium. Only 40.7 per cent of the children of blue-collar workers with comparable grades decided to enter a Gymnasium. On the other hand 52.1 per cent of the children of university-educated parents without good grades tried to pass the entrance test of a Gymnasium, whereas only 3.1 per cent of the blue-collar worker children with comparable grades took an entrance test.
"The hesitance of the less education-minded social strata in sending their children to the Gymnasium clearly illustrates that for all practical purposes the children of some social strata remain disadvantaged."[1]
The Federal Government therefore admits that the educational opportunities are still unequal in the Federal Republic.

Similar results have been found in Bavaria (see Table 9(a)-9(b)). Not only do upper class children with good grades but also those with mediocre or poor grade point averages enter a Gymnasium. On the other hand, the lower social strata are more hesitant in taking that step. Not even all children with good grades are sent to a Gymnasium. Only 56.1 per cent of all children from the lower class with a grade point average of

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[1] See: Der Bundesminister für Bildung und Wissenschaft: Bericht der Bundesregierung über die wirtschaftliche und soziale Sicherung des Studiums, Bonn 1974, p. 17.

Table 9(a)

Distribution of Pupils Leaving 4th Grade of Elementary School and those Entering Gymnasium by Social Group and School Performance: 1962/63

Social Class	Academic Performance (Grade Point Average in German and Mathematics)															
	1,5 and better		2.0		2.5		3.0		3.5		4.0		4.5		total	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
O	22 (14,7 %)	(86,4 %) 19	57 (38 %)	(63,2 %) 36	27 (18 %)	(44,4 %) 12	24 (16 %)	(20,8 %) 5	12 (8 %)	- -	6 (4 %)	- -	2 (1,3 %)	- -	150 (100 %)	(48 %) 72
OM	75 (21,5 %)	(81,3 %) 61	92 (26,4 %)	(37 %) 34	79 (22,6 %)	(26,6 %) 21	57 (16,3 %)	(15,8 %) 9	21 (6 %)	(4,8 %) 1	14 (4 %)	- -	11 (3,2 %)	- -	349 (100 %)	(36 %) 126
UM	157 (12,6 %)	(54,1 %) 85	306 (24,3 %)	(29,1 %) 89	222 (17,8 %)	(11,3 %) 25	239 (19,1 %)	(5,9 %) 14	100 (8 %)	- -	125 (10 %)	- -	109 (8,7 %)	- -	1258 (100 %)	(17,1 %) 213
OU	165 (6,3 %)	(44,2 %) 73	458 (17,6 %)	(17,7 %) 81	436 (16,8 %)	(4,4 %) 19	525 (20,2 %)	(1,7 %) 9	347 (13,4 %)	- -	329 (12,7 %)	- -	339 (13,0 %)	- -	2599 (100 %)	(7 %) 182
UU	38 (2,6 %)	(39,5 %) 15	150 (10,4 %)	(10 %) 15	181 (12,6 %)	(2,8 %) 5	233 (16,2 %)	- -	221 (15,4 %)	- -	236 (16,4 %)	- -	377 (26,3 %)	- -	1436 (100 %)	(2,4 %) 35
total	457 (7,9 %)	(55,4 %) 253	1063 (18,4 %)	(24,0 %) 255	945 (16,2 %)	(8,8 %) 32	1078 (18,6 %)	(3,4 %) 37	701 (12,1 %)	(0,1 %) 1	710 (12,3 %)	- -	838 (14,5 %)	- -	5792 (100 %)	(10,8 %) 628

A = Number of pupils
B = Entering Gymnasium

Source: A. O. Schorb, M. Schmidbauer, op.cit., pp. 64-65.

Table 9(b)

Distribution of Pupils Leaving 4th Grade of Elementary School and those Entering Gymnasium by Social Group and School Performance: 1969/70*

Social Class	Academic Performance (Grade Point Average in German and Mathematics)															
	1,5 and better		2,0		2,5		3,0		3,5		4,0		4,5		Total	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
O	53 (20,6 %)	(100 %) 53	82 (32,1 %)	(85,4 %) 70	45 (17,6 %)	(66 %) 30	31 (12,3 %)	(38 %) 12	17 (6,6 %)	(23 %) 5	14 (5,3 %)	(23 %) 3	14 (5,5 %)	-	256 (100 %)	(68 %) 173
OM	148 (16,3 %)	(93,2 %) 138	235 (25,9 %)	[illegible] 170	157 (17,3 %)	(61,8 %) 97	135 (14,9 %)	(23,7 %) 32	84 (9,2 %)	(8,3 %) 7	86 (9,4 %)	(4,7 %) 4	64 (7,0 %)	-	909 (100 %)	(50,2 %) 456
UM	249 (11,5 %)	(80,7 %) 201	485 (22,4 %)	(50,1 %) 243	403 (18,6 %)	(25,8 %) 104	386 (17,8 %)	(14,5 %) 56	230 (10,6 %)	(1 %) 2	225 (10,4 %)	-	188 (8,7 %)	-	2166 (100 %)	(28 %) 606
OU	280 (6,5 %)	(66,4 %) 186	760 (17,5 %)	(36,6 %) 278	665 (15,4 %)	(14 %) 93	807 (18,7 %)	(5,2 %) 42	572 (13,3 %)	(1,2 %) 7	587 (13,6 %)	-	660 (15,3 %)	-	4331 (100 %)	(14,0 %) 606
UU	88 (4,1 %)	(56,1 %) 50	195 (9,1 %)	(23,1 %) 45	261 (12,1 %)	(7,7 %) 20	367 (17,1 %)	(3 %) 11	306 (14,2 %)	(1 %) 3	391 (18,2 %)	-	541 (25,2 %)	-	2149 (100 %)	(6,0 %) 129
Total	819 (8,3 %)	(76,8 %) 628	1757 (17,9 %)	(46,3 %) 814	1531 (15,6 %)	(22,5 %) 344	1726 (17,6 %)	(8,9 %) 153	1209 (12,4 %)	(2 %) 24	1303 (13,3 %)	(0,5 %) 7	1467 (14,9 %)	-	9811 (100 %)	(20,1 %) 1970

A = Number of pupils
B = Entering Gymnasium

Source: A. O. Schorb, M. Schmidbauer, op.cit., pp. 62-63.

*See Figure 6(c) for the derivation of social class membership.

1.5 or better enter a Gymnasium. On the other hand 100 per cent of the upper class children with 1.5 or a better grade point average enter a Gymnasium. With a grade point average of 4.0, 23 per cent of the upper class children still enter a Gymnasium whereas lower middle class and lower class children with such grade point averages usually enter a secondary school (Hauptschule).1)

Social differentiation is less evident in the Realschule than in the Gymnasium; but in principle it shows similar patterns. Comparing the figures for the years 1969/70 and 1962/63 one notes that owing to the promotion of education and other methods of educational policy the tendency of lower social strata to enter a Realschule has increased. A similar development could not be observed for the upper social strata since among these groups the opportunities to enter a Gymnasium or a Realschule had already been fully utilized, at least on the part of those pupils with good grades. 2)

Schorb and Schmidbauer further note: "The promotion of education and other associated measures have led to a strong increase in the number of pupils attending the Gymnasium and the Realschule and similar schools. On the other hand this increase has resulted in a somewhat diminished role of the factor 'performance in school'as decisive for entering these schools." On the other hand the factors "motivation" and "support at home" have been given more importance. Instead of focussing on individual qualifications of the student, of late, more stress has been put on the "suitableness" of the family, i.e. the family's support and interest.3)

The relative differences of social strata remain unchanged - despite the promotion of education. The fact that the aspect "home" becomes more dominant is, if anything, disappointing. The study therefore concludes that due to the increasing dominance of the factor "home" a number of academically less

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1) Schorb, A.O., Schmidbauer, M.: *op.cit.*, p. 61-63.

2) *Ibid.*, pp. 61, 62.

3) *Ibid.*, pp. 62, 63.

suited students from higher social strata have entered a Gymnasium or a Realschule, whereas a number of "suited" (gifted) pupils from lower social strata remained in a secondary school. Hitpass has arrived at similar results for 4 Duisburg school districts. (See Tables 9(c) and (d))

The most recent school statistics of Baden Württemberg show some telling results. For the first time in 10 years the percentage of transfers from elementary school to Realschule or Gymnasium declined. A reduction of 3.5 per cent of transfers to the Realschule and a reduction of 1.3 per cent of transfers to the Gymnasium were observed. It is believed that this decline is accounted for by stiffer grading. The stiffer grading has been of particular disadvantage to blue-collar worker children; whereas the percentage of pupils with top grades declined by 7 percent among children of university educated parents and the comparable percentage of children of civil servants (without university education) and white-collar workers declined by 10 per cent, the percentage of blue-collar workers' children declined by more than one half.[1]

Children from lower social strata are more exposed to the increased pressure for performance; tutoring and help from their parents are rare.

The quantitative educational control which manifests itself in stiffer grading is particularly hard on children of blue-collar workers. It seems that the increase in the percentage of students from blue-collar worker background at universities since the middle sixties (1954: 4.9 per cent; 1973: 11.5 per cent) is not so much the result of a transformation of a social structure but rather a by-product of the expansion of education.

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[1] Wagner, Joachim: "Alarm für Arbeiterkinder", in: Die Zeit No. 36, August 30, 1974, p. 18.

Table 9(c)

Distribution of Children Continuing at Higher Grades of Elementary School (Hauptschule) by Occupation of Father

1. university graduates, "top level" civil servants, "top level" white-collar workers	0.5 %
2. self-employed craftsmen and businessmen	3.8 %
3. civil servants and white-collar workers	13.8 %
4. skilled workers	62.7 %
5. unskilled workers	15.1 %
6. no father	4.2 %

Table 9(d)

Percentage Distribution of Unutilized Potential of Gifted Children by Occupation of Father

1. university graduates, "top level" civil servants, "top level" white-collar workers	-.- %
2. self-employed craftsmen and businessmen	6.58 %
3. civil servants and white-collar workers	21.06 %
4. skilled workers	53.95 %
5. unskilled workers	11.83 %
6. no father	6.58 %

Source: Josef Hitpass, "Begabungsreserve 1963", in Pädagogische Rundschau 1963, Pp. 1033 - 1037 .

d) Constitutional Provisions and Participation in Practice

If we recognize that a more intensive and prolonged participation in the educational system leads to higher income (or rather, to the opportunity to earn higher income), the analysis of the German educational system can only lead to the conclusion that we can not expect much redistribution from it. Rather it lends support to the contention that potential performance is stifled: It is not so much that the more able tend to make better and longer use of educational facilities but rather those who due to their social background are more motivated. Certainly a one-sided critique of the educational system alone is not in place. Rather it should be directed towards social and societal processes in general. It would lead us to the conclusion that the productive potential is used inefficiently: The Gross National Product achieved is less than could be potentially achieved with a more efficient use of human resources.

The social inertia of established groups is not overcome by the system of education. Rather it is questionable that by an extended supply of education we shall actually bring about a significant redistribution of income in the near future. The work of Schorb and Schmidbauer clearly illustrated this point.

A provision of the Constitution of the Federal Republic states that equal opportunity and support be accorded irrespective of the parents' economic position and with regard only to the academic performance of the individual pupil. Compared with this norm we can only conclude that the German educational system has not lived up to its expectations. Previously established patterns of distribution are not or hardly at all altered by the education system, and the educational structures are differentiated according to social groupings. However, it should be added that not only the system of education itself and its formal structures are responsible for this result but also the different attitudes towards education held by different social groups.

2. Life Income, Life Taxes and Net Transfers

a) General Model

We may view the educational system as a tax-transfer mechanism. The system is financed by tax payments of different groups. It"distributes" (using economic terminology) the mixed good "education" to those groups in various "amounts". What then is the relationship between benefits and costs which arise over time among these groups? If the sum total of the benefits is greater than the sum total of the costs for a group, does that mean that the opposite occurs for another group? In other words who finances whose education?

Education can be considered a mixed good because it has some traits of a private, some of a public and some of a merit good.[1] The aspect of a private good is reflected in the exclusion principle which obviously is in effect for some aspects of education; the trait of a public good is expressed in the free availability to all of some education; that of a merit good in the enforcement of school attendence for all children in a certain age group irrespective of their preferences.

If one considers only economic flows (i.e., cash flows, as well as goods and services provided in kind) the educational system can be thought of as a type of fund. Over time part of the tax payments of individuals (and groups) flow into the fund and these individuals (and groups) are recompensed through the use of educational facilities.

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[1] See Richard Musgrave, *Finanztheorie*, Tübingen; J.C.B. Mohr (Paul Siebeck), 1966.

Thus the following relationships are generated:

Life Income

$$i = \text{age} \begin{cases} 7, 8 \dots k & \text{(k graduation age) transfer receipt including payments under Bafög}^{1)} \\ k+1, k+2, \dots 62 & \text{income (participation in labor force)} \\ 63, 64, \dots 76 & \text{retirement income;} \end{cases}$$

Yg_{ij} = gross income of group j at age i
$i = k + 1, k + 2 \dots 62$;

Ty_{ij} = income tax paid by group j at age i
$i = k + 1, k + 2 \dots 62$;

Yn_{ij} = $Yg_{ij} - Ty_{ij}$ = net income after income tax of group j at age i, $i = k + 1, k + 2, \dots 62$

Trb_{ij} = payments under Bafög[1] to group j at age i
$i = \ell, \dots k$ ℓ beginning of payment, $\ell < k$

Rg_{ij} = retirement income of group j at age i, $i = 63, 64 \dots 76$

Tp_{ij} = income tax on retirement income of group j at age i

Rn_{ij} = net retirement income after income tax for group j at age i

For these variables the following present value for a child of age 6, beginning his education can be computed

$$(1) \quad Yg_{Lj} = \sum_{i=k+1}^{62} \frac{Yg_{ij}}{(1+r)^i} = \text{life gross income for group } j$$

$r = 1, \dots, 15$ rate of discount

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[1] Bafög stands for Bundesausbildungsförderungsgesetz (Act for the Promotion of Education), which provides for rather extensive public scholarships for needy students.

$$(2)\ Ty_{Lj} = \sum_{i=k+1}^{62} \frac{Ty_{ij}}{(1+r)^i}$$ = life income tax of group j

$$(3)\ Trb_{Lj} = \sum_{i=\ell}^{k} \frac{Trb_{ij}}{(1+r)^i}$$ = life Baföq transfer receipts of group j

$$(4)\ Yn_{Lj} = \sum_{i=k+1}^{62} \frac{Yn_{ij}}{(1+r)^i} + \sum_{i=\ell}^{k} \frac{Trb_{ij}}{(1+r)^i} = \sum_{i=k+1}^{62} \frac{(Yg_{ij}-Ty_{ij})}{(i+r)^i} + \sum_{i=\ell}^{k} \frac{Trb_{ij}}{(1+r)^i}$$

$$Yg_{Lj} - Ty_{Lj} + Trb_{Lj} = Yn_{Lj}$$ = net life income after income tax of group j

$$(5)\ Rg_{Lj} = \sum_{i=63}^{76} \frac{Rg_{ij}}{(1+r)^i}$$ = life retirement income of group j

$$(6)\ Tp_{Lj} = \sum_{i=63}^{76} \frac{Tp_{ij}}{(1+r)^i}$$ = life income tax on retirement income of group j

$$(7)\ Rn_{Lj} = \sum_{i=63}^{76} \frac{Rn_{ij}}{(i+r)^i} = \sum_{i=63}^{76} \frac{Rg_{ij}-Tp_{ij}}{(i+r)^i} = Rg_{Lj} - Tp_{Lj}$$

= life net retirement income of group j

Distribution of Costs:

Life Tax Applicable to Education Expenditures (life education tax)

If

ET_{ij} = education tax levied from group j at age i[1]

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[1] A split value-added tax rate of 11 per cent and 5.5. per cent, respectively, exists in the Federal Republic, depending on the type of good; for the purpose of this investigation an average rate of 10 per cent was applied.

$ETvb_{ij}$ = education tax share of value added tax paid by Bafög-transfer recipients of group j at age i[1] $i = \ell, \ldots k$

ETy_{ij} = education tax component of income tax of group j at age i $i = k+1, \ldots 62$

ETr_{ij} = education tax component of income tax on retirement income of group j at age i $i = 63, \ldots 76$

ETv_{ij} = education tax component of value added tax paid during the period of employment for group j at age i $i = k+1, \ldots 62$

$ETvr_{ij}$ = education tax component of value added tax paid during the period when retirement income is received $i = 63, \ldots 76$

Then:

(8) $ET_{ij} = ETy_{ij} + ETr_{ij} + ETvb_{ij} + ETv_{ij} + ETvr_{ij}$

(9) $ETy_{ij} = (0.16)Ty_{ij}$

(10) $ETr_{ij} = (0.16)Tp_{ij}$

(11) $ETv_{ij} = (0.016)Yn_{ij}$

(12) $ETvr_{ij} = (0.016)Rn_{ij}$

(13) $ETvb_{ij} = (0.016)Trb_{ij}$

(14) ET_{Lj} = life education tax of group j $= \sum_{i=\ell}^{76} \frac{ET_{ij}}{(1+r)^i}$

$$= \sum_{i=\ell}^{76} \frac{ETy_{ij}+ETr_{ij}+ETvb_{ij}+ETv_{ij}+ETvr_{ij}}{(i+r)^i}$$

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[1] Bundesminister für Bildung und Wissenschaft, *Grunddaten*, Ausgabe 1974, Bonn,March,1974.

$$= \sum_{i=k+1}^{62} \frac{ETy_{ij}}{(1+r)^i} + \sum_{i=63}^{76} \frac{ETr_{ij}}{(1+r)^i} + \sum_{i=\ell}^{k} \frac{ETvb_{ij}}{(1+r)^i} + \sum_{i=k+1}^{62} \frac{ETv_{ij}}{(1+r)^i} + \sum_{i=63}^{76} \frac{ETvr_{ij}}{(1+r)^i}$$

$$= \sum_{i=\ell}^{k} \frac{ETvb_{ij}}{(1+r)^i} + \sum_{i=k+1}^{62} \frac{(ETy_{ij}+ETv_{ij})}{(1+r)^i} + \sum_{i=63}^{76} \frac{(ETr_{ij}+ETvr_{ij})}{(1+r)^i}$$

$$= \sum_{i=\ell}^{k} \frac{0.016\ Trb_{ij}}{(i+r)^i} + \sum_{i=k+1}^{62} \frac{(0.16\ Ty_{ij}+0.016Yn_{ij})}{(1+r)^i} + \sum_{i=63}^{76} \frac{(0.16Tp_{ij}+0.016In_{ij})}{(1+r)^i}$$

$$= 0.016Trb_{Lj} + 0.16Ty_{Lj} + 0.016Yn_{Lj} + 0.16\ Tp_{Lj} + 0.016Rn_{Lj}$$

Distribution of Benefits : Life Educational Transfers

(15) C_{ij} = Cost of education financed by the public sector for group j at age i $i = 7, 8 \ldots k$

(16) C_{Lj} = life cost of education $= \sum_{i=7}^{k} \frac{C_{ij}}{(1+r)^i}$

(17) Tre_{ij} = education transfer to group j at age i

$$= \begin{cases} C_{ij} & i=7, \ldots \ell-1 \\ C_{ij}+Trb_{ij} & i=\ell, \ldots k \end{cases}$$

(18) Tre_{Lj} = life education transfer to group j at age i

$$= \sum_{i=7}^{\ell-1} \frac{C_{ij}}{(1+r)^i} + \sum_{i=\ell}^{k} \frac{(C_{ij}+Trb_{ij})}{(1+r)^i}$$

$$= C_{Lj} + Trb_{Lj}$$

b) The Micro-Approach to Ascertain the Distributive Effects of Education

i) Civil Servants

As a first approach salaries, tax payments, and education transfers were analyzed for civil servants in four different career groups. Net transfers or net taxes (transfers minus taxes) were computed over the entire expected typical life span of civil servants. Each of the four career groups is characterized by different educational prerequisites[1] - and therefore different amounts of transfers through education[2] - as well as different salary structures - and therefore different amounts of life taxes[3].

Civil servants were chosen for this analysis, since they are the one group for which reliable data on income and changes in income over their lifetime were available. To which degree various career groups in the civil service are representative of the general population of employees with a similar educational background, cannot be said definitely. For a large number of private employees, it may, however, be true that their patterns of income - and taxes - do not deviate too radically from those of civil servants with comparable education, since a good amount of mobility between public and private employment has been retained. A further justification for the choice of civil servants as subjects for analysis is found in their large number. Even if they were not representative of other employees, the civil service employs 3.4 million people in the Federal Republic of Germany. Accordingly, every eighth German employee is employed by the public sector.

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[1] The prerequisite for the various civil service careers is a specific educational attainment: for a career in the "top level service" it is necessary to be a graduate of a university, for a career in the "higher service" a graduate of a high school (Gymnasium); for a career in the "middle service" a graduate of a Realschule; and for a career in "lower service" a graduate of a secondary school (Hauptschule).

[2] Transfer components: school costs and various stipends under the Federal Act for the Promotion of Education (Bundesausbildungsförderungsgesetz or BAFÖG).

[3] Tax components to finance education: share of income tax and of the value-added tax.

For each of the four civil service career groups ("top level", "higher", "middle" and "lower civil service") the differing life incomes and net-transfers or net taxes (transfer-tax residuals) were computed.

Life Income

The typical life income of one civil servant of each career group can be computed using the following components: (1) gross-life income, (2) life income tax [1]; (3) net-life income including and excluding educational transfers in cash (under the Bundesausbildungsförderungsgesetz), and (4) the educational expenditures made by the public sector for the individual; i.e. the share of the costs of schooling attributable to the pupil (transfer in kind), as well as cash transfers under the Bundesausbildungsförderungsgesetz.

Two approaches were chosen: The first approach neglects the time factor of cost and benefit flows; it consists in a simple summation over the life span, of income, tax and transfers. The second approach was aimed at computing present values of these flows by employing alternate positive rates of discount.

The computations were based on the respective gross monthly incomes of civil servants in the non-technical postal service.[2]

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[1] Tax on wages and salaries and other income tax.

[2] Regulated in the salary guidelines for civil servants of the German Federal Postal Service, 1973.

The following assumptions were made:-

(1) For every second year a salary increase was computed corresponding to the seniority rankings in the civil service.

(2) The children of civil service employees obtain the same educational level as their father (i.e.,they spend the same number of years in school). This assumption was relevant since civil servants receive a child bonus and location bonus, the latter being computed on the basis of the number of dependent family members.

(3) The annual income tax was computed on the basis of 13 monthly income payments per year. (Civil servants receive an extra month's salary)[1].

(4) Educational transfers were computed at an average level. The actual level depends on the income position of the student's parents, which is not generally known.[2]

(5) For computing the cost of education, 1973 data of public expenditures per pupil in various school types were used.[3]

(6) The costs of university education per student are averages of DM 100,000 across disciplines (assuming 5 years at the university). The range is DM 311,000 for medical students to DM 30,000 for social science students.[4]

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[1] As per income tax schedules.

[2] See: Bundesminister für Bildung und Wissenschaft, informationen bildung wissenschaft 5/74, Bonn, p. 74.

[3] See: Bundesminister für Bildung und Wissenschaft, informationen bildung wissenschaft 9/74, Bonn, p. 133.

[4] See: Bundesminister für Bildung und Wissenschaft, informationen bildung wissenschaft 5/74, Bonn, pp. 67-68.

Monthly and annual gross income, income tax, and educational transfers in-cash and in-kind accruing throughout the life of a representative civil servant of the respective career groups are shown in Tables 10 to 13. The net life income plot is shown in Figure 7 for the four career groups.

The computations of life income indicate that different levels of education are, in fact, associated with quite substantial income differentials. For example, the completion of Gymnasium, which is a prerequisite for employment in the higher civil service, enables a typical civil servant to earn a 66 per cent higher life income than his colleague in the lower service who completed but 9 grades of school. If we discount income at a 5 per cent rate to derive the "present values" of the total life income for a first grader starting school, then this difference is somewhat reduced (it amounts to 41.1 per cent). The top level civil servant's life income is 102.2 per cent higher than that of the lower civil servant. On the other hand, if incomes are evaluated from a first grader's point of view (discounting them at 5 per cent annually), the differentials are reduced significantly: The top level civil servant enters his professional life comparatively late; his discounted life income is therefore only 55.4 per cent higher than the discounted life income of a lower-level civil servant. Nonetheless, most differences remain fairly substantial. These results can be seen more clearly in Table 14 and Figure 8 for the respective groups.

When the rate of discount is increased to 8 per cent the differences in the present values of life incomes of top-level and higher civil servants disappear. At rates beyond 10 per cent the present values of life incomes of the two higher career groups drop below those of the middle civil service. At rates above 12.5 per cent, the present value of the top level's life income appears lower than that of the lower level civil servant.

Table 10

Income and Income Tax of a Typical Civil Servant in the Lower Civil Service

(based on 1973 income data)

1	2	3	4	5	6	7
age	facts pertaining to income changes	gross income monthly 1973	gross income annual 1973	income tax 1973 5)	educational cash transfer 1973	educational transfer in kind 1973 6) (schooling)
7	[illegible]					2140
8	•					2140
9	•					2140
10	•					2140
11	[illegible]					2140
12	•					2140
13	•					2140
14	•					2140
15	•					2140
16	[illegible]	335,--	4355,--	133		
17	•	380,--	4940,--	267		
18	•	425,--	5525,--	376		
19	[illegible]	454,--	5902,--	450		
20	•	454,--	5902,--	450		
21	[illegible]	-,--	-,--			
22	[illegible]	952,29	8570,61 4)	957		
23		975,16	12077,04	1805		
24	[illegible]	1053,66	13697,58	1436		
25	[illegible]	1131,19	14705,47	1618		
26	[illegible]	1228,19	15966,47	1630		
27		1252,35	16280,55	1646		
28	[illegible]	1356,85	17639,05	1670		
29		1381,01	17953,13	1686		
30		1381,01	17953,13	1686		
31		1405,17	18267,21	1754		
32		1405,17	18267,21	1754		
33		1429,33	18581,29	1812		
34		1429,33	18581,29	1812		
35		1453,49	18895,37	1864		
36		1453,49	18895,37	1868		
37		1477,65	19209,45	1926		
38		1477,65	19209,45	1926		
39		1501,81	19523,53	1954		
40		1501,81	19523,53	1994		
41	[illegible] 3)	1397,31	18165,03	2052		
42		1397,31	18165,03	2052		
43	[illegible] 3)	1300,31	16904,03	2040		
44		•	•	•		
45		•	•	•		
46		•	•	•		
47		•	•	•		
48		•	•	•		
49		•	•	•		
50		•	•	•		
51		•	•	•		
52		•	•	•		
53		•	•	•		
54		•	•	•		
55		1300,31	16904,03	2040		
56	[illegible]	1364,01	17732,13	2200		
57		•	•	•		
58		•	•	•		
59		•	•	•		
60		•	•	•		
61		•	•	•		
62	1) 8)	1364,01	17732,13	2200		
63	[illegible]	1023,--	13299,--	1356		
64		•	•	•		
65		•	•	•		
66		•	•	•		
67		•	•	•		
68		•	•	•		
69		•	•	•		
70		•	•	•		
71		•	•	•		
72		•	•	•		
73		•	•	•		
74		•	•	•		
75		•	•	•		
76	2)	1023,--	13299,--	1356		

1) end of active duty at the completion of the 62nd year .

2) average life expectancy.

3) the children are assumed to reach the same education level as their father.

4) Since 3 months (of the total 15 months) are spent in the military service, income is earned only during 9 months of this year

5) wage-and-salary tax and other income tax .

6) These are the estimated per pupil costs of schooling accruing in different types of school.

7) maintenance support (during a practical training period no salary is paid).

8) if the civil servant retires at age 65, 62-salary level continues until retirement .

Table 11

Income and Income Tax of a Typical Civil Servant in the Middle Civil Service

(based on 1973 income data)

1	2	3	4	5	6	7
age	facts pertaining to [illegible] changes	gross income monthly 1973	gross income annual 1973	income tax 1973 5)	educational cash transfer 1973	educational transfer in kind 1973 6) (schooling)
7	[illegible]					2140
8						2140
9						2140
10						2140
11	[illegible]					2140
12						2140
13	[illegible]					2750
14						2750
15						2750
16						2750
17	[illegible] 7)	567,--	7371,--	729		
18		567,--	7371,--	729		
19	[illegible]	1060,75	13789,75	2064		
20		1050,75	13789,75	2064		
21	[illegible]	-,--	-,--			
22		1060,75	9546,75 4)	1140		
23		1092,59	14203,67	2169		
24	[illegible]	1092,59	14203,67	2169		
25	[illegible]	1254,69	16310,97	2120		
26		1254,69	16310,97	2120		
27	[illegible]	1384,70	18001,10	2016		
28		1384,70	18001,10	2016		
29	[illegible]	1595,35	20739,55	2222		
30		1595,35	20739,55	2222		
31		1627,36	21155,68	2302		
32		1627,36	21155,68	2302		
33		1660,37	21584,81	2382		
34		1660,37	21584,81	2382		
35		1693,38	22013,94	2462		
36		1693,38	22013,94	2462		
37		1726,39	22443,07	2544		
38		1726,39	22443,07	2544		
39		1759,40	22872,20	2626		
40		1759,40	22872,20	2626		
41		1792,41	23301,33	2722		
42		1792,41	23301,33	2722		
43	[illegible] 3)	1720,42	22365,46	2870		
44		1720,42	22365,46	2870		
45	[illegible] 3)	1656,43	21533,59	2946		
46		•	•	•		
47		•	•	•		
48		•	•	•		
49		•	•	•		
50		•	•	•		
51		•	•	•		
52		•	•	•		
53		•	•	•		
54		•	•	•		
55		•	•	•		
56		1656,43	21533,59	2856		
57	[illegible]	1793,96	23321,48	3338		
58		•	•	•		
59		•	•	•		
60		•	•	•		
61		•	•	•		
62	1) 8)	1793,96	23321,48	3338		
63	[illegible]	1345,47	17491,11	2154		
64		•	•	•		
65		•	•	•		
66		•	•	•		
67		•	•	•		
68		•	•	•		
69		•	•	•		
70		•	•	•		
71		•	•	•		
72		•	•	•		
73		•	•	•		
74		•	•	•		
75		•	•	•		
76	2)	1345,47	17491,11	2154		

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1) end of active duty at the completion of the 62^{nd} year.

2) average life expectancy.

3) the children are assumed to reach the same education level as their father.

4) Since 3 months (of the total 15 months) are spent in the military service income is earned only during 9 months of this year.

5) wage-and-salary tax and other income tax.

6) These are the estimated per pupil costs of schooling accruing in different types of school.

7) maintenance support (during a practical training period no salary is paid).

8) if the civil servant retires at age 65, 62-salary level continues until retirement.

Table 12

Income and Income Tax of a Typical Civil Servant in the Higher Civil Service

(based on 1973 income data)

1	2	3	4	5	6	7
age	facts pertaining to income changes	gross income monthly 1973	gross income annual 1973	income tax 1973 5)	educational cash transfer 1973	educational transfer in kind 1973 6) (schooling)
7	elementary school					2140
8	•					2140
9	•					2140
10	•					2140
11	Gymnasium					3330
12	•					3330
13	•					3330
14	•					3330
15	•					3330
16	•					3330
17	•				1952 9)	3330
18	•				1952	3330
19	•				1952	3330
20	military service	-,--	-,--	--		
21	maintenance support 7)	689,--	6201,-- 4)	507		
22		689,--	8957,--	1031		
23		689,--	8957,--	1031		
24	salary group A9	1448,84	18834,92	3471		
25		1490,62	19378,06	3639		
26		1490,62	19378,06	3639		
27	married	1609,80	20927,40	2522		
28	1st child	1706,40	22183,20	2634		
29		1748,76	22733,88	2746		
30	2nd child	1853,78	24099,14	2284		
31	salary group A10	2056,49	26734,37	3458		
32		2056,49	26734,37	3458		
33		2108,62	27412,06	3610		
34		2108,62	27412,06	3610		
35		2160,75	28089,75	3766		
36		2160,75	28089,75	3766		
37	salary group A11	2397,65	31169,45	4538		
38		2397,65	31169,45	4538		
39		2451,07	31863,91	4710		
40		2451,07	31863,91	4710		
41		2504,49	32558,37	4900		
42		2504,49	32558,37	4900		
43	salary group A12	2780,72	36149,36	5900		
44		2780,72	36149,36	5900		
45		2844,41	36977,33	6146		
46		2844,41	36977,33	6146		
47		2908,10	37805,30	6376		
48	child bonus for 1st child stops 3)	2803,10	36440,30	6484		
49		2803,10	36440,30	6484		
50	child bonus for 2nd child stops 3)	2706,10	35179,30	6466		
51		•	•	•		
52		•	•	•		
53		•	•	•		
54		•	•	•		
55		•	•	•		
56		•	•	•		
57		•	•	•		
58		•	•	•		
59		•	•	•		
60		•	•	•		
61		•	•	•		
62	1)8)	2706,10	35179,30	6466		
63	retirement income	2029,57	26384,41	4054		
64		•	•	•		
65		•	•	•		
66		•	•	•		
67		•	•	•		
68		•	•	•		
69		•	•	•		
70		•	•	•		
71		•	•	•		
72		•	•	•		
73		•	•	•		
74		•	•	•		
75		•	•	•		
76	2)	2029,57	26384,41	4054		

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1) end of active duty at the completion of the 62nd year .

2) average life expectancy .

3) the children are assumed to reach the same education level as their father .

4) Since 3 months (of the total 15 months) are spent in the military service income is earned only during 9 months of this year.

5) wage-and-salary tax and other income tax .

6) These are the estimated per pupil costs of schooling according to different types of school .

7) maintenance support (during a practical training period no salary is paid) .

8) if the civil servant retires at age 65, 62-salary level continues until retirement .

9) stipend under the Bundesausbildungsförderungsgesetz during the last three years of Gymnasium .

Table 13

Income and Income Tax of a Typical Civil Servant in the Top Level Civil Service

(based on 1973 income data)

1	2	3	4	5	6	7
age	facts pertaining to income changes	gross income montly 1973	gross income annual 1973	income tax 1973 5)	educational cash transfer 1973	educational transfer in kind 1973 6) (schooling)
7	elementary school					2140
8	•					2140
9	•					2140
10	•					2140
11	Gymnasium					3330
12	•					3330
13	•					3330
14	•					3330
15	•					3330
16	•					3330
17	•				1952 9)	3330
18	•				1952	3330
19	•				1952	3330
20	military service					
21	university				2678 4)	20000 10)
22	•				3571	20000
23	•				3571	20000
24	•				3571	20000
25	•				3571	20000
26	maintenance support 7)	985,--	12805,--	1826		
27		985,--	12805,--	1826		
28		985,--	12805,--	1826		
29	sal.group A13,married	2389,28	31060,64	5274		
30	1st child	2486,28	32321,64	5290		
31		2555,04	33215,52	5542		
32		2555,04	33215,52	5542		
33	2nd child	2728,80	35474,40	5696		
34	salary group A14	2795,63	36343,19	5912		
35		2884,79	37502,27	6288		
36		2884,79	37502,27	6288		
37		2973,95	38661,35	6648		
38		2973,95	38661,35	6648		
39		3063,11	39820,43	6996		
40		3063,11	39820,43	6996		
41	salary group A15	3440,48	44726,24	8504		
42		3440,48	44726,24	8504		
43		3538,48	46000,24	9008		
44		3538,48	46000,24	9008		
45		3636,48	47274,24	9442		
46		3636,48	47274,24	9442		
47		3734,48	48548,24	9882		
48		3734,48	48548,24	9882		
49		3832,48	49822,24	10330		
50		•	•	•		
51		•	•	•		
52		•	•	•		
53		•	•	•		
54		3832,48	49822,24	10350		
55	child bonus for 1st 3)	3727,48	48457,24	10458		
56	child stops	3727,48	48457,24	10458		
57	child bonus for 2nd 3)	3727,48	48457,24	10458		
58	child stops	3630,48	47196,24	10436		
59		•	•	•		
60		•	•	•		
61		•	•	•		
62	1) 8)	3630,48	47196,24	10436		
63	retirement income	2722,85	35397,05	6520		
64		•	•	•		
65		•	•	•		
66		•	•	•		
67		•	•	•		
68		•	•	•		
69		•	•	•		
70		•	•	•		
71		•	•	•		
72		•	•	•		
73		•	•	•		
74		•	•	•		
75		•	•	•		
76		•	•	•		

1) end of active duty at the completion of the 62nd year.

2) average life expectancy .

3) the children are assumed to reach the same education level as their father.

4) Since 3 months (of the total 15 months) are spent in the military service income is earned only during 9 months of this year.

5) wage-and-salary tax and other income tax .

6) These are the estimated per pupil costs of schooling accruing in different types of school.

7) maintenance support (during a practical training period no salary is paid) .

8) if the civil servant retires at age 65, 62-salary level continues until retirement .

9) stipend under the Bundesausbildungsförderungsgesetz during the last three years of Gymnasium .

10) The average 5 year cost of DM 100,000 per student were distributed uniformly over the 5 year period .

Figure 7

Net Annual Income of Civil Servants in the Lower, Middle, Higher and Top-Level Civil Service (1973 figures; stipends under the Bundesausbildungsförderungsgesetz excluded)

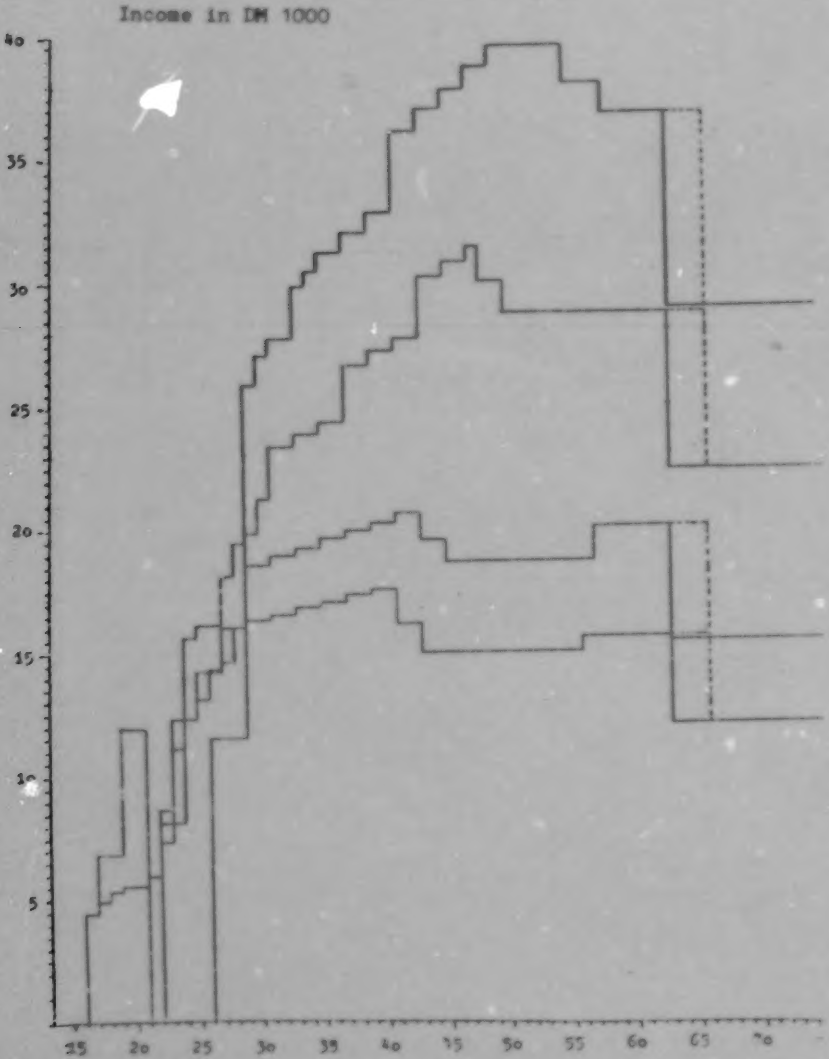

Table 14

Gross Life Income, Life Income Tax, Net Life Income, Excess of Net Life Income in Per Cent of Lower Civil Service Net Life Income

1	2	3	4	5	6	7
Career Groups		Rate of Discount	Gross Life Income	Life Income Tax	Net Life Income (incl. Ed. Cash Transfer)	Excess Net Life Income % 3)
lower civil service	not discounted 1)		917 414.13	99 558.00	817 856.13	00.0
	discounted 1)	5%	161 925.00	16 766.95	145 158.00	00.0
		6%	122 299.06	12 526.18	109 772.75	00.0
		7%	93 960.94	9 519.60	84 441.06	00.0
		8%	73 291.13	7 346.18	65 945.31	00.0
		9%	57 942.92	5 746.93	52 195.69	00.0
		10%	46 356.97	4 550.66	41 806.24	00.0
		11%	37 483.84	3 642.65	33 841.20	00.0
		12%	30 598.61	2 944.13	27 654.48	00.0
		13%	25 193.01	2 400.34	22 792.66	00.0
		14%	20 902.81	1 972.30	18 930.50	00.0
		15%	17 465.36	1 632.09	15 833.25	00.0
middle civil service	not discounted		1 145 059.31	145 132.00	999 927.31	22.3
	discounted	5%	187 691.50	24 501.59	163 190.06	12.4
		6%	142 766.50	18 418.96	124 347.56	13.3
		7%	110 376.06	14 107.72	96 268.19	14.0
		8%	86 571.25	10 986.85	75 584.38	14.6
		9%	68 773.88	8 683.46	60 091.20	15.1
		10%	55 257.95	6 952.63	48 305.25	15.5
		11%	44 849.68	5 630.99	39 218.61	15.8
		12%	36 734.09	4 607.07	32 126.98	16.2
		13%	30 334.95	3 803.45	26 531.45	16.4
		14%	25 236.24	3 165.08	22 071.18	16.5
		15%	21 136.42	2 652.70	18 483.70	16.7
higher civil service	not discounted		1 610 968.06	259 018.00	1 357 806.06	66.0
	discounted	5%	238 408.88	36 690.20	204 [illegible]82.25	41.2
		6%	173 111.88	26 399.79	149 [illegible]25.44	36.3
		7%	127 833.19	19 338.63	11[illegible] 108.75	31.6
		8%	95 843.63	14 378.21	83 [illegible]95.38	27.1
		9%	72 850.25	10 831.62	64 [illegible]86.43	22.8
		10%	56 055.37	8 297.50	49 829.36	18.7
		11%	43 609.29	6 419.80	38 869.38	14.9
		12%	34 263.59	5 [illegible]	30 753.02	11.2
		13%	27 161.92	3 943.38	24 536.30	7.7
		14%	21 705.26	3 156.11	19 771.57	4.4
		15%	17 471.35	2 532.91	16 040.11	1.3
top level civil service	not discounted		2 020 956.99	389 402.00	1 654 312.99	102.3
	discounted	5%	264 051.44	48 886.63	225 807.13	55.6
		6%	185 696.88	34 050.52	160 540.55	46.5
		7%	132 591.13	24 079.14	116 471.00	37.9
		8%	95 991.81	17 257.60	85 627.31	29.8
		9%	70 377.25	12 343.52	63 832.75	22.3
		10%	52 188.52	9 219.70	48 191.26	15.3
		11%	39 103.02	6 479.15	36 808.03	8.8
		12%	29 575.12	5 140.07	28 415.39	2.8
		13%	22 561.42	3 [illegible]	22 153.65	- 2.8
		14%	17 345.14	2 071.44	17 428.99	- 7.9
		15%	13 450.22	2 [illegible]	13 829.00	- 12.7

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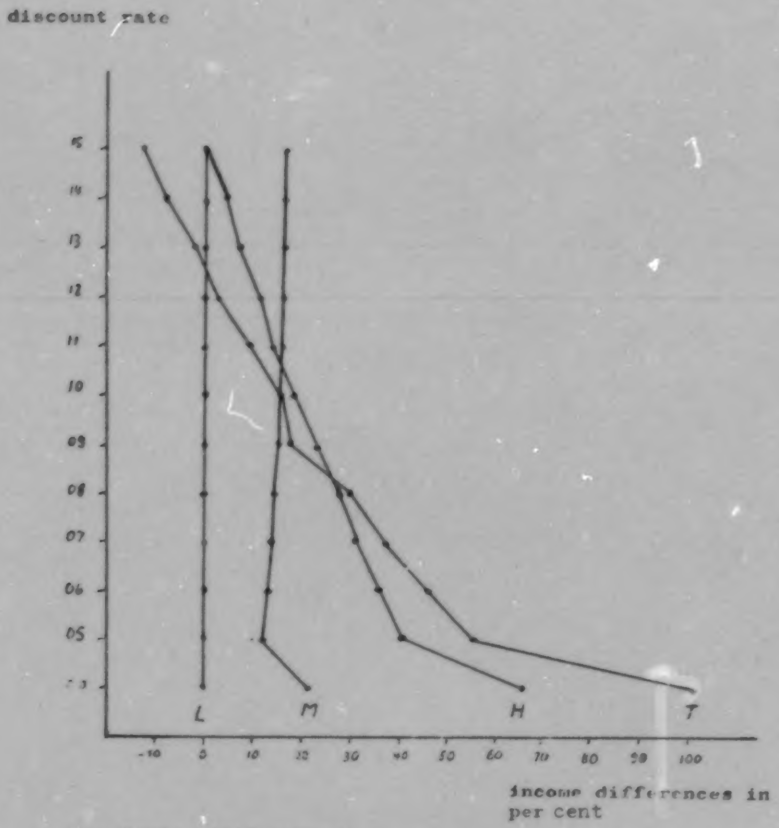
1) For annual data and summation see Tables 10-13.

2) r varies between 5 and 15 per cent; discounting according to procedures in 'General Model'.

3) Life income of lower civil service equals 100 per cent; the excess of other groups over the lower civil service income is shown in percentage points.

Figure 8

Differences in the Life Income of Four Career Groups Using Varying Rates of Discount



L = lower civil service
M = middle civil service
H = higher civil service
T = top level civil service

Note: See Table 14, column 7.

Tax-Transfer-Residual (net tax or net transfer)

For each career group of civil servants, education taxes, education transfers and their residuals were computed (see Tables 10 to 13). The following considerations influence these calculations:

(1) Life transfers from the educational system consist of two components: Costs of education and payments under the Federal Act for the Promotion of Education (Bundesausbildungsförderungsgesetz or BAFÖG) The former represent transfers-in-kind and the latter cash transfers. (See Tables 10 to 13; the information was made available by the Minister for Education and Science).

(2) Of the entire budget approximately 16 per cent are devoted to education expenditure. It is therefore assumed that an equal share of all taxes paid finance the educational system; (henceforth this share is called education tax for short). For the present purpose we estimate the education tax paid as 16 per cent of the major tax categories, viz. income tax and value-added tax. Thus 16 per cent of life income tax paid plus 16 per cent of life value-added tax paid constitute the life education tax. As we use an average value-added tax rate of 10 per cent rather than the split tax rate of 11 per cent for some goods and 5.5 per cent for others, this would yield an education tax share of 1.6 per cent (16 per cent of 10 per cent) of consumption expenditure. For simplicity's sake we assume that the entire net income is consumed and we estimate the value-added tax share of the education tax as 1.6 per cent of net income, which most likely overestimates the true amount.

From the education transfer and education tax residual we compute the net subsidy and net tax of civil servants in the different career groups. Following the previous procedure in computing life income, these amounts are computed, first by using raw data and, second, by computing present values for the taxes paid over the expected lifetime.

The computational procedures follow those employed in computing life income, including all ages up to 76.

In the present educational and fiscal system a positive net transfer (excess of transfers received over taxes paid) accrues only to university graduates; i.e., the civil service career group top-level service. (See Table 15).

Using the simple summation procedure (i.e., without discounting payments to a given point in time) the top-level civil servants pay back only 55 per cent of their educational transfers received, in education tax; 45 per cent of their educational transfer represents a net transfer.

All other groups without university degrees finance the educational system to a larger extent than they benefit from it. They pay a net tax. Their tax payments are in excess of the educational transfers received by them throughout their education. (It should be stressed that these conclusions were drawn from undiscounted data summations. Furthermore, the tax-component referred to is only that part of taxes paid which finances the education budget).

Table 15

Life Education Tax, Life Education Transfer, Net Subsidy or Net Tax, respectively of Civil Servants according to Career Groups

(up to 62 years of age, including retirement income up to 76 years of age)

1	2	3	4	5	6	7	8	9
Career Groups		Rate of Discount	Life Income Tax	Net Life Income (incl. Ed. Cash Transfer)	Total Life Education Tax 2)	Life Education Transfer	Net Transfer - Net Tax (7) - (6)	Tax Transfer Ratio
lower civil service	not discounted 1)		99 558.00	817 856.13	29 014.00	19 260.00	- 9 754.00	1.51
	discounted 1)	5%	16 766.95	145 158.00	5 005.24	15 210.80	+ 10 205.56	0.33
		6%	12 526.18	109 772.75	3 760.55	14 555.66	+ 10 795.11	0.26
		7%	9 519.60	84 441.06	2 874.19	13 942.63	+ 11 068.44	0.21
		8%	7 346.18	65 945.31	2 230.51	13 368.35	+ 11 137.84	0.17
		9%	5 746.93	52 195.89	1 754.64	12 829.88	+ 11 075.24	0.14
		10%	4 550.66	41 806.24	1 397.00	12 324.34	+ 10 927.34	0.11
		11%	3 642.65	33 841.20	1 124.28	11 849.30	+ 10 725.02	0.09
		12%	2 944.13	27 654.48	913.53	11 402.45	+ 10 488.92	0.08
		13%	2 400.34	22 792.66	748.74	10 981.78	+ 10 233.04	0.07
		14%	1 972.30	18 930.50	618.46	10 585.26	+ 9 966.80	0.06
		15%	1 632.09	15 833.25	514.47	10 211.21	+ 9 696.74	0.05
middle civil service	not discounted		143 132.00	999 927.31	39 219.00	23 840.00	- 15 379.00	1.65
	discounted	5%	24 501.59	163 190.06	6 531.29	18 138.69	+ 11 607.40	0.36
		6%	18 418.96	124 347.56	4 936.59	17 240.73	+ 12 304.14	0.29
		7%	14 107.72	96 268.19	3 797.53	16 407.30	+ 12 609.77	0.23
		8%	10 986.85	75 584.38	2 967.25	15 632.79	+ 12 665.54	0.19
		9%	8 683.46	60 091.20	2 350.81	14 912.21	+ 12 561.40	0.16
		10%	6 952.63	48 305.25	1 885.30	14 240.89	+ 12 355.59	0.13
		11%	5 630.99	39 218.61	1 528.46	13 614.79	+ 12 086.33	0.11
		12%	4 607.07	32 126.98	1 251.16	13 030.16	+ 11 779.00	0.10
		13%	3 803.45	26 531.45	1 033.06	12 483.71	+ 11 450.65	0.08
		14%	3 165.08	22 071.18	859.55	11 972.27	+ 11 112.72	0.07
		15%	2 652.70	18 483.70	720.17	11 493.10	+ 10 772.93	0.06
higher civil service	not discounted		259 018.00	1 357 806.06	63 167.00	44 386.00	- 18 781.00	1.42
	discounted	5%	36 690.20	204 982.25	9 150.14	30 324.56	+ 21 174.42	0.30
		6%	26 399.79	149 625.44	6 617.97	28 269.64	+ 21 651.67	0.23
		7%	19 328.63	111 108.75	4 870.32	26 404.39	+ 21 534.07	0.18
		8%	14 378.21	83 795.38	3 641.24	24 708.20	+ 21 067.04	0.15
		9%	10 851.62	64 086.43	2 761.64	23 163.44	+ 20 401.80	0.12
		10%	8 297.50	49 629.36	2 121.67	21 753.69	+ 19 632.02	0.10
		11%	6 419.80	38 869.38	1 649.08	20 465.18	+ 18 816.10	0.08
		12%	5 020.04	30 753.02	1 295.25	19 285.52	+ 17 990.27	0.07
		13%	3 963.38	24 556.30	1 027.04	18 203.86	+ 17 176.82	0.06
		14%	3 156.11	19 771.57	821.32	17 210.25	+ 16 388.93	0.05
		15%	2 532.91	16 040.11	661.91	16 296.16	+ 15 634.25	0.04
top level civil service	not discounted		389 402.00	1 654 312.99	88 773.00	161 348.00	+ 72 575.00	0.55
	discounted	5%	48 886.63	225 807.13	11 434.77	81 438.06	+ 70 003.29	0.14
		6%	34 050.52	160 340.56	8 021.53	71 813.44	+ 63 791.91	0.11
		7%	24 079.12	116 471.00	5 716.19	63 561.95	+ 57 845.76	0.09
		8%	17 267.60	85 627.31	4 132.85	56 468.44	+ 52 335.59	0.07
		9%	12 543.59	63 832.75	3 028.30	50 354.53	+ 47 326.23	0.06
		10%	9 219.70	48 191.26	2 246.21	45 069.54	+ 42 823.33	0.05
		11%	6 850.15	36 808.05	1 684.95	40 489.15	+ 38 804.20	0.04
		12%	5 140.07	28 415.39	1 277.06	36 508.60	+ 35 231.54	0.03
		13%	3 892.08	22 153.65	977.19	33 040.23	+ 32 063.04	0.03
		14%	2 971.48	17 428.99	754.30	30 009.21	+ 29 254.91	0.03
		15%	2 285.94	13 828.00	587.00	27 353.38	+ 26 766.38	0.02

1) Based on summation of data in Tables 10-13.

2) Computations outlined in the "General Model".

In summary we present the following positive and negative transfer-tax residuals expressed as percentage of educational transfers received:

top-level civil service	+ 45 %	(net transfer received)
higher civil service	- 42 %	(net tax paid)
middle civil service	- 65 %	(net tax paid)
lower civil service	- 51 %	(net tax paid)

If we look at the present values of education transfers and education tax, it appears that all career groups receive net transfers, though to different degrees.

top-level civil service	+ 86 %	(net transfer)
higher civil service	+ 70 %	(net transfer)
middle civil service	+ 64 %	(net transfer)
lower civil service	+ 67 %	(net transfer)

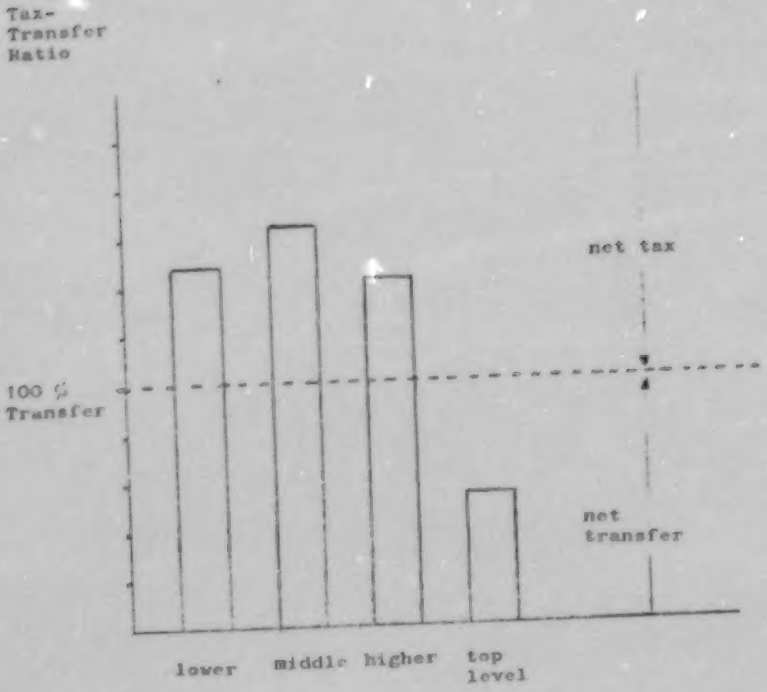
This pattern results from the fact that educational transfers are received rather early in life while taxes paid accrue later; when discounted the former obtain a relatively greater weight.

This point is further illustrated by Figures 9, 10 and Table 16. Tax-transfer ratio using undiscounted values are plotted in Figure 9. As indicated above transfers exceed taxes only for the top-level civil service. All other groups pay more taxes than what they receive as transfers.

A numerical and diagrammatic representation of the tax-transfer ratio derived at varying discount rates is offered in Table 16 an Figure 10. Both illustrations show that as far as present values are concerned all groups derive a net benefit from the system. Education "pays" for all of them. The general tendency, that the more educated benefit more is, of course, maintained.

Figure 9

Tax-Transfer Ratio for Civil Servants in the Four Career Groups: Transfers and Taxes not Discounted[1]



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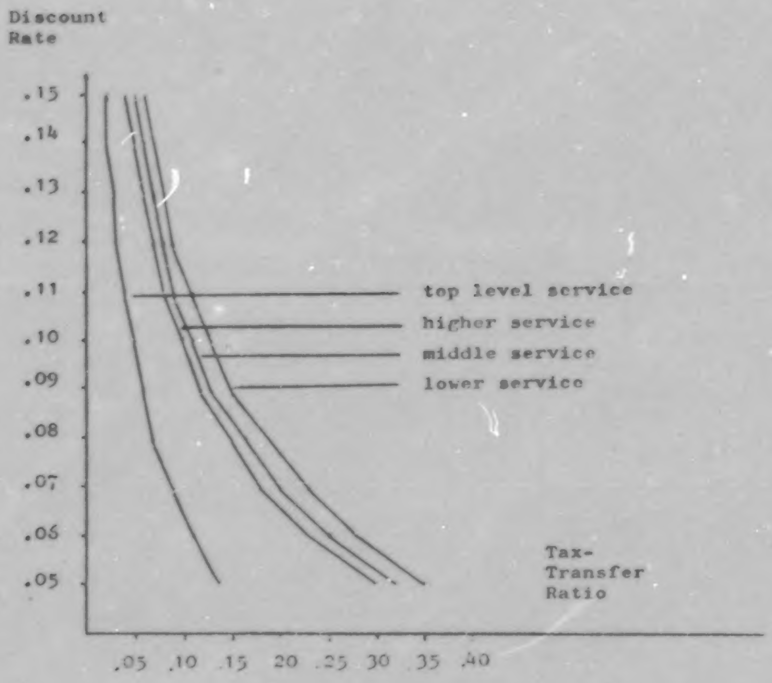
[1] See Table 15, column 9 (values not discounted).

Figure 10

Tax-Tra[illegible]r Ratio as a Function of the Discount Rate



Note: See Table 15 columns 3 and 9.

Table 16

Tax-Transfer Ratio at Different Rates of Discount

Discount Rate (r)	lower service	middle service	higher service	top level service
05	.33	.36	.30	.14
06	.26	.29	.23	.11
07	.21	.23	.18	.09
08	.17	.19	.15	.07
09	.14	.16	.12	.06
10	.11	.13	.10	.05
11	.09	.11	.08	.04
12	.08	.10	.07	.03
13	.07	.08	.06	.03
14	.06	.07	.05	.03
15	.05	.06	.04	.02

ii) The Case of IBM - Germany

The regular and consistent pattern of differentiation in the amount of education life income earned, and life educational transfers received is perhaps not as representative of the private as of the public sector: In the latter the educational level is evidently the major determinant of the level of civil service employment.

In order to explore the patterns descriptive at the micro-level of the private sector, several companies were approached.

Most of these agreed to supply data on their employee incomes, education taxes and education transfers for the purpose of this study. Thus far only the International Business Machines Co. (IBM) has delivered these data. (The data supplied by other companies will be published seperately).

The data supplied by IBM-Germany were structured in the same manner as the civil servant incomes used in our previous analysis. Computations were based on the "General Model" outlined above.

Of the approximately 24,000 employees of IBM-Germany a sample of 14,517 (which is representative of the majority of the IBM employees) was included in the analysis. Among those not included were the employees of the distribution division; generally these have higher average incomes than the employees of other divisions.

Of the 14,517 employees analyzed 6,414 had completed nine grades (elementary and secondary school) and received vocational training; 2 749 completed the middle level (Realschule); 199 graduated from Gymnasium; 2 318 are graduates of a technical college (Fachhochschule); and 2 837 are university graduates.

The IBM gross wages and salaries used for the purpose of computation include both contractual remunerations as well as additional payments. Life income figures include educational cash transfers. Income levels of older employees (ages 43 - 63), had to be simulated, in part, since no direct data for these age groups were available Some types of education programmes were collapsed into one group, or eliminated from the analysis, due to the lack of information on complete income series.

Retirement wages were overestimated slightly. The figures shown represent 75 per cent of the last employment income. Actual retirement pay to IBM employees is 70 per cent of the last employment income.

The first comparison of IBM and civil service incomes shows one striking difference: IBM wages and salaries are much higher than comparable civil service incomes with similar academic requirements. This should, however, not be generalized to all private industries in the Federal Republic of Germany. IBM wages and salaries are in top bracket of wage and income levels, if not at the very top.

Tables 17 to 21 show the gross income, income tax, net income flows and educational cash transfers, where applicable, over the years, for typical IBM employees with different educational background.

The values of life income and life tax discounted at rates between 5 and 15 per cent are shown in Table 22. The last column shows the excess of the respective value of the life net income over the corresponding income value of the least educated group.

Most interesting, perhaps, is the information on the comparison between life education tax and life educational transfers, shown in Table 23:

1. The amounts paid by way of life time net taxes are considerably higher for graduates of the Gymnasium, Realschule, and Secondary School who joined IBM than for those with similar levels of education in public service.

2. University graduates among IBM employees tend to finance their whole education including university studies, by way of education taxes paid over their life time.

Table 17

Income and Income Tax of a Typical IBM employee with Secondary School Education plus Vocational Training

(based on 1973 income data)

age	facts pertaining to income changes	gross income per month	gross income per annum	income tax per annum	net income per annum
16	vocational training				
17	"	420	5040	285	4755
18	"	460	5520	376	5144
19		510	6120	490	5630
20	military service				
21		1420	13627	3020	11607
22		1490	21374	4292	17082
23		1555	22240	4586	17654
24	married	1620	23107	4878	18229
25		1685	23973	3486	20487
26	1st child	1745	24773	3666	21107
27		1810	25639	3596	22043
28	2nd child	1865	26372	3766	22606
29		1925	27172	3556	23616
30		1980	27905	3724	24181
31		2040	28705	3924	24781
32		2095	29438	4100	25338
33		2145	30105	4264	25841
34		2195	30771	4430	26341
35		2240	31371	4584	26787
36		2285	31971	4742	27229
37		2325	32504	4884	27620
38		2360	32971	5012	27959
39		2395	33437	5142	28295
40		2420	33748	5224	28524
41		2440	33994	5290	28704
42		2455	34179	5340	28839
43		2470	34364	5390	28974
44		2485	34549	5440	29109
45	child bonus for 1st child stops	2495	34672	5474	29198
46		2505	34796	5988	28808
47	child bonus for 2nd child stops	2515	34919	6022	28897
48		2520	34981	6394	28587
49		2530	35104	6430	28674
50		2540	35227	6466	28761
51		2545	35289	6484	28805
52		2555	35412	6520	28892
53		2560	35474	6538	28936
54		2565	35535	6556	28979
55		2570	35597	6592	29005
56		2580	35720	6630	29090
57		2585	35782	6648	29134
58		2590	35844	6666	29178
59		2600	35967	6702	29265
60		2605	36029	6720	29309
61		2610	36090	6738	29352
62		2620	36214	6776	29438
63		2625	36275	6794	29481
64	retirement	2630	36337	6812	29525
↓		1973	23676	3418	20258
		↓	↓	↓	↓
76		1973	23676	3418	20258

Table 18

Income and Income Tax of a Typical IBM Employee with Middle Level Education (Realschule) plus Training

(based on 1973 income data)

age	facts pertaining to income changes	gross income per month	gross income per annum	income tax per annum	net income per annum
16					
17	vocational training	420	5040	285	4755
18	"	460	5520	376	5144
19	"	510	6120	490	5630
20	military service				
21		1585	11095	1116	9979
22		1670	23773	3652	20121
23		1760	24973	3938	21035
24	married	1865	26372	4040	22332
25		1990	28039	4476	23563
26	1st child	2120	29772	4600	25172
27		2255	31571	5078	26493
28	2nd child	2395	33437	5142	28295
29		2530	35104	5592	29512
30		2665	36768	6076	30692
31		2805	38495	6592	31903
32		2940	40159	7108	33051
33		3075	41824	7620	34204
34		3215	43550	8184	35366
35		3355	45276	8764	36512
36		3490	46941	9338	37603
37		3620	48514	9882	38662
38		3720	49777	10328	39449
39		3800	50763	10674	40089
40		3860	51503	10956	40547
41		3915	52181	11198	40983
42		3965	52790	11418	41372
43		4005	53270	11596	41674
44		4045	53750	11774	41976
45		4085	54230	11954	42276
46	child bonus for 1st child stops	4115	54590	12724	41866
47		4145	54950	12862	42088
48	child bonus for 2nd child stops	4175	55310	13370	41940
49		4200	55610	13578	42032
50		4225	55910	13696	42214
51		4245	56150	13788	42362
52		4270	56450	13906	42544
53		4285	56630	13976	42654
54		4305	56870	14070	42800
55		4320	57050	14140	42910
56		4335	57230	14212	43018
57		4345	57350	14258	43092
58		4360	57530	14330	43200
59		4370	57650	14378	43272
60		4380	57770	14424	43346
61		4390	57890	14472	43418
62		4400	58010	14520	43490
63		4405	58070	14542	43528
64	retirement	3304	39648	7852	31796
↓		↓	↓	↓	↓
76		3304	39648	7852	31796

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Table 19

Income and Income Tax of a Typical IBM Employee who Graduated from Gymnasium and Received Training

(based on 1973 income data)

age	facts pertaining to income changes	gross income per month	gross income per annum	income tax per annum	net income per annum	educational cash transfer per annum
16						
17						1952
18						1952
19	graduation (Gymnasium)					1952
20	military service					
21	vocational training	420	2570	285	2235	
22	"	460	5570	376	5144	
23		1710	24306	5304	19002	
24	married	1810	25639	4114	21525	
25		1930	27239	4264	22975	
26	1st child	2065	29038	4414	24624	
27		2230	31238	4996	26242	
28	2nd child	2415	33686	5208	28478	
29		2630	36337	5952	30385	
30		2825	38741	6666	32075	
31		3005	40[illegible]1	7354	33667	
32		3170	4299[illegible]	8008	34987	
33		3320	44645	8624	36221	
34		3445	46386	9132	37254	
35		3560	47804	9630	38174	
36		3670	49160	10114	39046	
37		3775	50455	10564	39891	
38		3870	51626	11000	40626	
39		3955	52670	11374	41296	
40		4040	53690	11752	41938	
41		4120	54650	12110	42540	
42		4195	55550	12450	43100	
43		4265	56390	12770	43620	
44		4340	57290	13114	44176	
45		4410	58130	13440	44690	
46		4465	58790	13696	45094	
47	child bonus for 1st child stops	4520	59450	14614	44836	
48		4565	59990	14828	45162	
49	child bonus for 2nd child stops	4605	60470	15500	44970	
50		4630	60770	15620	45150	
51		4650	61010	15716	45294	
52		4670	61250	15814	45436	
53		4690	61490	15910	45580	
54		4710	61730	16008	45722	
55		4725	61910	16080	45830	
56		4740	62090	16152	45938	
57		4755	62270	16226	46044	
58		4765	62390	16274	46116	
59		4780	62570	16348	46222	
60		4795	62750	16420	46330	
61		4805	62870	16470	46400	
62		4820	63050	16542	46508	
63		4830	63170	16592	46578	
64	retirement	3623	43476	9132	34344	
↓		↓	↓	↓	↓	
76		3623	43476	9132	34344	

Table 20

Income and Income Tax of a Typical IBM Employee who Graduated from a Technical College (Fachhochschule)

(based on 1973 income data)

age	facts pertaining to income changes	gross income per month	gross income per annum	income tax per annum	net income per annum	educational cash transfer per annum
16						1952
17						1952
18						1952
19	military service					
20	Fachhochschule					2678
21						3571
22						3571
23						3571
24	graduation					3571
25	employment	2300	32171	8357	23814	
26		2440	33994	9098	24896	
27		2570	35597	9774	25823	
28	married	2710	37323	7108	30215	
29	1st child	2840	38926	7240	31686	
30		2980	40652	7794	32858	
31		3110	42255	8304	33951	
32	2nd child	3250	43982	8324	35658	
33		3390	45708	8906	36802	
34		3520	47311	9462	37849	
35		3660	49037	10072	38965	
36		3800	50763	10674	40089	
37		3930	52366	11264	41102	
38		4070	54050	11886	42164	
39		4200	55610	12474	43136	
40		4310	56930	12976	43954	
41		4420	58250	13486	44764	
42		4530	59570	14000	45570	
43		4630	60770	14472	46298	
44		4730	61970	14948	47022	
45		4810	62930	15330	47600	
46		4880	63770	15668	48102	
47		4940	64490	15958	48532	
48		4990	65090	16202	48888	
49		5030	65570	16396	49174	
50		5065	65990	16568	49422	
51		5095	66350	16714	49636	
52		5115	66590	16812	49778	
53	child bonus for 1st child stops	5135	66830	17600	49230	
54		5155	67070	17698	49372	
55		5175	67310	17798	49512	
56	child bonus for 2nd child stops	5195	67550	18394	49156	
57		5210	67730	18470	49260	
58		5225	67910	18544	49366	
59		5240	68090	18618	49472	
60		5255	68270	18668	49602	
61		5270	68450	18768	49682	
62		5280	68570	18818	49752	
63		5295	68750	18894	49856	
64	retirement	3971	47652	10586	37066	
↓		↓	↓	↓	↓	
76		3971	47652	10586	37066	

Table 21

Income and Income Tax of a Typical University graduate IBM Employee

(based on 1973 income data)

age	facts pertaining to income changes	gross income per month	gross income per annum	income tax per annum	net income per annum	educational cash transfer per annum
16						
17						1952
18						1952
19	graduation (Gymnasium)					1952
20	military service					
21	university					2678
22						3571
23						3571
24						3571
25	graduation (university)					3571
26	employment	2520	34981	9510	25471	
27		2630	36337	10077	26260	
28		2780	38186	11658	26528	
29	married	2940	40159	8028	32131	
30	1st child	3100	42132	8264	33868	
31		3260	44105	8926	35179	
32		3430	46201	9650	36551	
33	2nd child	3610	48420	9840	38580	
34		3800	50763	10674	40089	
35		3990	53090	11528	41562	
36		4180	55370	12382	42988	
37		4390	57890	13346	44544	
38		4615	60590	14400	46190	
39		4825	63110	15404	47706	
40		5060	65930	16542	49388	
41		5245	68150	17452	50698	
42		5390	69890	18170	51720	
43		5500	71210	18718	52492	
44		5595	72350	19196	53154	
45		5660	73130	19522	53608	
46		5705	73670	19750	53920	
47		5740	74090	19926	54164	
48		5770	74450	20078	54372	
49		5795	74750	20204	54546	
50		5820	75050	20332	54718	
51		5835	75230	20408	54822	
52		5850	75410	20484	54926	
53		5865	75590	20560	55030	
54		5880	75770	20636	55134	
55	child bonus for 1st child stops	5890	75890	21480	54410	
56		5905	76070	21558	54512	
57		5915	76190	21608	54582	
58	child bonus for 2nd child stops	5925	76310	22176	54134	
59		5935	76430	22228	54202	
60		5945	76550	22278	54272	
61		5955	76670	22330	54340	
62		5965	76790	22382	54408	
63		5970	76850	22408	54442	
64	retirement	4478	53736	12930	40806	
↓		↓	↓	↓	↓	
76		4478	53736	12930	40806	

Table 22

Gross Life Income, Life Income Tax, Net Life Income, Excess of Net Life Income in Per cent of Lowest Life Income Level

Educational Level	Rate of Discount %	Gross Life Income DM	Life Income Tax DM	Net Life Income (incl. Ed.Cash Transfer)	Excess Net Life Income %
secondary school plus vocational training	0	1 724 021	280 927	1 443 094	0.0
	5	293 711	46 450	247 259	0.0
	6	220 340	34 623	185 716	0.0
	7	168 228	26 275	141 952	0.0
	8	130 470	20 265	110 205	0.0
	9	102 606	15 856	86 755	0.0
	10	81 697	12 567	69 131	0.0
	11	65 768	10 074	55 694	0.0
	12	53 465	8 157	45 307	0.0
	13	43 845	6 664	37 180	0.0
	14	36 235	5 489	30 749	0.0
	15	30 164	4 554	25 611	0.0
middle level education plus training	0	2 557 081	545 569	2 011 512	39.4
	5	388 538	76 180	312 358	26.3
	6	284 395	54 598	229 797	23.7
	7	211 899	39 819	172 080	21.1
	8	160 445	29 512	130 932	18.8
	9	123 260	22 200	101 059	16.5
	10	95 936	16 928	79 008	14.3
	11	75 550	13 067	62 481	12.2
	12	60 126	10 203	49 922	10.2
	13	48 307	8 049	40 258	8.3
	14	39 146	6 408	32 738	6.5
	15	31 970	5 146	26 824	4.7
Gymnasium plus training	0	2 690 074	606 541	2 089 394	44.8
	5	385 524	81 257	307 532	24.4
	6	277 931	57 637	223 210	20.2
	7	203 768	41 578	164 796	16.1
	8	151 652	30 465	123 558	12.1
	9	114 491	22 645	93 934	8.2
	10	87 491	17 055	72 309	4.6
	11	67 608	13 000	56 289	1.1
	12	52 770	10 018	44 263	- 2.3
	13	41 563	7 797	35 124	- 5.5
	14	33 004	6 124	28 103	- 8.6
	15	26 403	4 850	22 655	- 11.5
technical college (Fachhochschule)	0	2 844 021	680 155	2 186 684	51.5
	5	387 720	90 123	308 772	24.9
	6	275 988	63 764	221 970	19.5
	7	199 657	45 [illegible]	162 304	14.3
	8	146 575	33 504	120 526	9.4
	9	109 045	24 816	90 768	4.6
	10	82 106	18 617	69 234	0.2
	11	62 494	14 128	53 422	- 4.1
	12	48 033	10 814	41 657	- 8.1
	13	37 245	8 357	32 795	- 11.8
	14	29 111	6 549	26 045	- 15.3
	15	22 919	5 151	20 852	- 18.6
University	0	3 152 322	812 203	2 362 937	63.7
	5	414 850	101 216	321 258	29.9
	6	292 [illegible]	73 [illegible]	[illegible]	23.1
	7	20[illegible] 618	[illegible]	16[illegible]	16.6
	8	152 346	37 [illegible]	121 [illegible]	10.3
	9	112 175	27 [illegible]	[illegible]	1.4
	10	83 572	20 4[illegible]	68 [illegible]	- 1.2
	11	62 9[illegible]	15 [illegible]	52 [illegible]	- [illegible]
	12	4[illegible]	11 [illegible]	40 2[illegible]	- [illegible]
	13	[illegible] 727	8 [illegible]	31 2[illegible]	- [illegible]
	14	[illegible]	6 [illegible]	[illegible]	- [illegible]
	15	22 112	5 [illegible]	19 4[illegible]	- 2[illegible]

3. Graduates of a technical college (Fachhochschule) also tend to pay considerable net taxes. (This result stands in contrast with an earlier study by Kullmer and Krug[1]).

IBM - Germany patterns would, no doubt, indicate that the striking picture of subsidisation of higher levels of education (and income) by those with lower levels, carried through via the education budget, is more specific to the civil service than to the private sector. On the other hand we need to explore whether the patterns noted for IBM-Germany are truly representative of the private sector, which seems doubtful.

Table 23

Life Education Tax, Life Education Transfer, Net Subsidy or Net Transfer, respectively of IBM - employees

(including retirement income up to 76 years of age)

1	2	3	4	5	6	7
Education / Training	Life Income Tax	Net Life Income (incl. Ed. Cash Transfer)	Total Life Education Tax	Life Education Transfer 1)	Net Transfer + Net Tax	Tax-Transfer-Ratio
Secondary School plus Vocational Training	280 927	1 443 094	68 038	19 260	- 48 778	3.53
Middle Level Education plus Training	545 569	2 011 512	119 475	23 840	- 95 635	5.01
Gymnasium plus Training	606 541	2 089 394	130 477	44 386	- 86 091	2.94
Technical College (Fachhochschule)	680 755	2 186 684	143 812	71 191	- 72 621	2.02
University	812 203	2 362 937	167 759	161 348	- 6 411	1.04

1) See Table 15.

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[1] loc. cit.

c) The Distributive Effect of Education: Employees in the Private Sector and other Public Employees

The previous analysis was confined to the group of civil servants who comprise approximately 1.8 million of the 3.4 million public employees. This group was chosen since the general educational employment requirements, promotion, income levels, raises, and retirement income are routinized, which provides a rather reliable basis for the derivation of data. The individual level was chosen, i.e. representative individuals of the four career groups were the subject of the analysis since this facilitated inter-group comparison.

It is desirable to extend the analysis to employees in the private sector and to other public employees. For want of more recent and more complete data this analysis has to be based on the modified 1964 data of Külmer and Krug.[1]

As a rule employees in the private sector retire at age 65. Retirement income was not included since wide variations occur, depending on the amount of private pensions paid to employees over and above the public old age insurance.

The study was based on an individual approach, i.e., as in our previous analysis representative individuals in different occupational groups were studied. Their life income and consequently their taxes attributable to education were, however, only analyzed up to their retirement. Since this practice deviates somewhat from the one employed in our previous analysis of the civil service, and since comparability of employees in all sectors seems desirable, our previous analysis will be extended and modified. It will include income flows and associated tax paxments for the four civil service career groups based on active employment up to age 65, excluding retirement income.

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[1] Külmer/Krug, "Beziehung zwischen beruflicher Ausbildung und Nettoeinkommen der ausgebildeten Personen", in Wirtschaft und Statistik 1967. Statistisches Bundesamt, Wiesbaden, 1967, p.572.

The annual income, education tax, and educational transfers of the four career groups were shown in Tables 10 to 13. For the subsequent analysis it is assumed that the income levels attained at age 62, the retirement age employed in the analysis of civil servants, also applied to the three additional years of active duty. This assumption and the fact that retirement income was excluded in the following analysis, of course, leads to different life income, life tax, life transfer, and transfer-tax residual.

(1) These modifications of individual values yield reduced values of computed life gross and net incomes, life income and life value added tax, and consequently life education tax;

(2) the procedure leaves life educational transfers unchanged since all transfers are assumed to accrue in early life;

(3) the transfer-tax residuals for individuals in all four groups appear larger than the ones computed in section (b) above. since a smaller amount of taxes is accumulated by age 65 than by age 76.

It appears to be of little interest to show all individual life totals under the present procedure. Only the modified individual life totals of life education tax, life educational transfers and the consequent tax-transfer residuals shall be presented in Table 24.

Parallel to the previous analysis of individuals in the civil service groups we present the simple sum over life of these values and the present values from the position of a first grader, discounting future receipts and expenditures at a rate of 5 per cent. The general patterns observed in the previous analysis are retained, although changes in the indicated directions can be observed.

In order to facilitate comparability of civil servants and other employees in the public and in the private sectors the data

Table 24

Life Educational Transfer, Life Education Tax, Transfer-Tax Residual of Civil Servants

(up to Age 65, Excluding Retirement Income)

	career group	life educational transfer	life education tax	transfer-tax residual
values undiscounted	top level	161348,00	74474.80	+ 86873.20
	higher	44386,00	53566.73	- 9180.73
	middle	23840,00	33520.93	- 9680.93
	lower	19260,00	25103.85	- 5843.85
values discounted at 5%	top level	81438,06	10905.97	+ 70532.09
	higher	30324,56	8793.84	+ 21530.72
	middle	18138,69	6252.35	+ 11886.34
	lower	15210,80	4859.63	+ 10251.17

reported by Külmer and Krug[1] for 1964 had to be updated to 1973 income levels. For this purpose they were inflated by the indices of labour-management contracts in industry and of schedule incomes of the contractually employed in the public sector.[2] (Table 25).

Some problems and inaccuracies arising in these computations ought to be mentioned:

(1) Since no data concerning life income tax for these groups was available, approximations had to be found using the relationship between life income and life tax for civil servants.[3]

(2) It could not be ascertained whether or not published net life income excluded or included social security deductions, such as medical insurance, etc. Since civil servants do not pay social security taxes a strict comparability could not be ascertained.

(3) The procedure used to approximate 1973 incomes could not take into account that particularly higher level white-collar workers usually received remunerations in excess of the wages laid down in labor contracts. This would cause a downward bias in the income and tax data derived; the bias is probably particularly pronounced in higher income groups.

(4) During the period 1963 to 1973 changes took place in the educational prerequisites for certain higher studies and certain jobs (e.g., prerequisites for engineering were stepped up radically). This would result in higher educational inputs for nominally the same jobs. These increased educational inputs lead to higher 1973 incomes than those estimated on the basis of 1964 data.

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[1] Külmer/Krug: *op.cit.*, p. 572.

[2] "Index der tariflichen Wochenarbeitszeiten und der Tarifgehälter der Angestellten und Arbeiter in der gewerblichen Wirtschaft und bei Gebietskörperschaften", in *Statistisches Jahrbuch, 1973* Statistisches Bundesamt, Wiesbaden, p. 491, Löhne und Gehälter 1. Halbjahr 1973 der gewerblichen Wirtschaft und der Gebietskörperschaften, in: Institut für Wirtschaftsforschung, *Ifo-Schnelldienst*, Heft 47, Nov. 21, 1973.

[3] See Figure 11 based on data from Tables 14 and 15.

Table 25

Imputed 1973 Life Income for Different Educational Background (Based on Inflated 1964 Life Income Data)

Male Population

education	year	life net income	index[1]	
university graduate	1964 1973	606.153.-- 1,115.123.--	110.4 203.1	white-collar workers
Berufsfachschule Fachschule	1964 1973	415.699.-- 812.793.--	110.6 216.25	blue-collar workers
(engineering) Fachhochschule graduate	1964 1973	520.987.-- 958.446.--	110.4 203.1	white-collar workers
practical training	1964 1973	370.231.-- 723.891.--	110.6 216.25	blue-collar workers
on the job training	1964 1973	352.026.-- 688.296.--	110.6 216.25	blue-collar workers
no training	1964 1973	317.448.-- 620.688.--	110.6 216.25	blue-collar workers

---

1) Base year 1960.

The relative patterns observed for civil servants are repeated here, with one possible exception. Higher education leads to higher life incomes. As Table 26 shows, the highest life income can be observed for university graduates, followed rather closely by graduates of the Fachhochschule. The lowest income is earned by those without any specific training. Since taxes are income related, the pattern repeats itself for life income tax and life education tax.

The computation of educational transfers is based on the following per pupil costs published by the Minister of Education and Science[1]:

Elementary and Secondary School	DM 2140
Realschule	DM 2750
Gymnasium	DM 3330
Vocational Schools	DM 3670; DM 1224 per pupil[2]
Higher Vocational Schools	DM 1520

The life tax computations have been carried out analogously to the procedures used for civil servants.

The net effect of the educational system can be measured either as transfer-tax residual or as ratio; the tax-transfer ratio was chosen here. Both in essence convey the same result although the ratio lends itself to inter-group comparison more aptly. The transfer-tax residual shows a net transfer for the most educated and the least educated. The latter result was not observed for civil servants of the lower echelons. However, they show considerably higher income than the untrained. The pattern, however, seems to support results of other studies of distribution, viz. that the main burden of a system is generally borne by the middle income groups.

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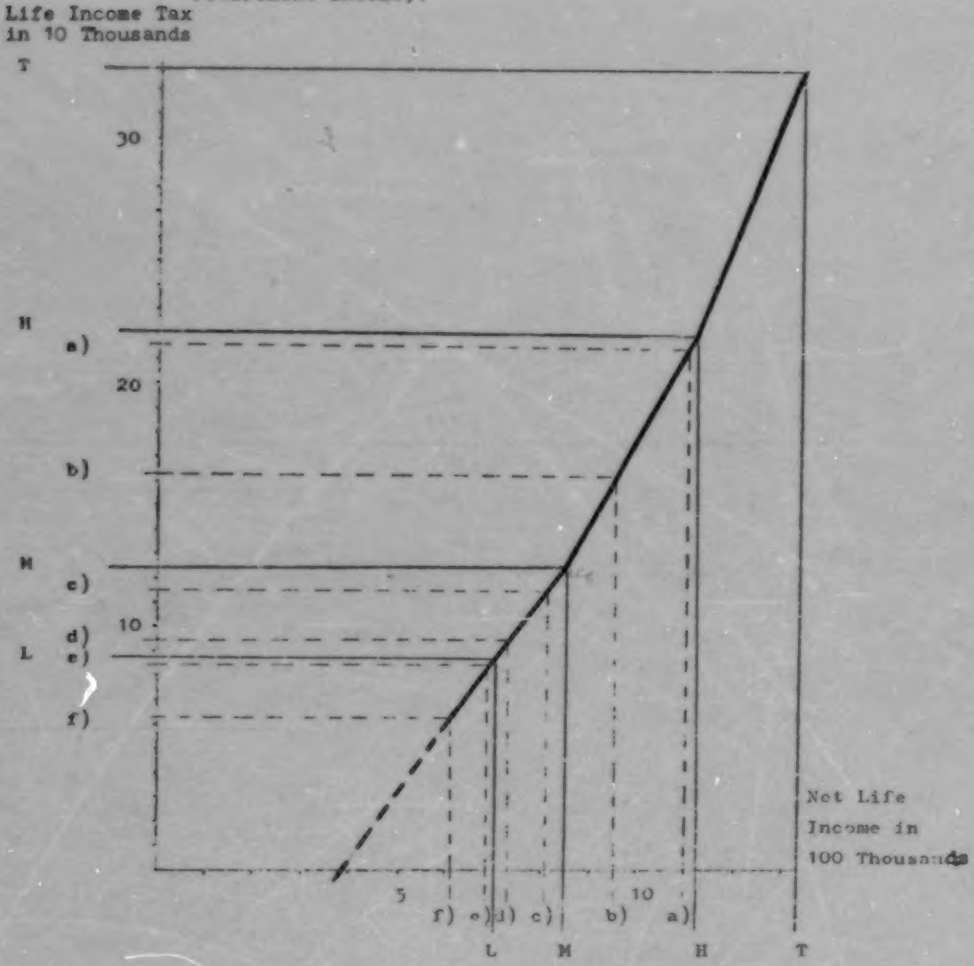
[1] Der Bundesminister für Bildung und Wissenschaft, informationen bildung wissenschaft, Bonn 9/74, S. 133.

[2] In vocational schools, three pupils occupy one position as they attend school only part of the day.

Figure 11

Net Life Income - Life Income Tax: A Comparison

(corresponding to civil servants' income excluding retirement income).



T: top level service
H: higher service
M: middle service
L: lower service

a): university graduate
b): engineering school graduate
c): Berufsfachschule (vocational school)
d): practical training
e): on the job training
f): no training

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for a comparision see Tables 10 to 13.

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Table 26

Transfer-Tax Residuals for Individuals with Different Education and/or Occupation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
education/ training	life income tax 1)	net life income	life education tax (income tax) 16 % of (1)	total life education tax (3) + 1.6 % of (2)	education transfer	transfer-tax residual (5)-(4)	tax-transfer ratio (4)/(5)
university graduate	214,000	1,115,123	34,240	52,142	161,373[2)]	+109,231	0.32
engineering (Fachhochschule) training	162,000	958,446	25,920	41,362	71,191[3)]	+ 29,829	0.58
Berufsfachschule-Fachschule (vocational)	114,000	512,793	18,240	31,245	25,048[4)]	- 6,197	1.25
practical training	94,000	732,891	15,040	26,766	22,932[5)]	- 3,834	1.17
on-the-job-training	84,000	682,8[illegible]	13,440	24,453	22,932[5)]	- 1,521	1.07
no training	62,000	620,6[illegible]	9,920	19,851	22,932[5)]	+ 3,081	0.87

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1) See Figure 11.

2) See Table 15: educational transfer to top level civil service.

3) 4 years' elementary school at DM 2140; 9 years'Gymnasium at DM 3330, during which a stipend of DM 1952 under the Bundesausbildungsförderungsgesetz is paid for the last 3 years; 3 years' Fachhochschule at DM 5364 and a 3-years' stipend at DM 3571 under the Bundesausbildungsförderungsgesetz (for computation of Fachhochschule expenditures per student see Statistisches Bundesamt, Wiesbaden: Wirtschaft und Statistik NF 1972, p. 1522.

4) 4 years' elementary school at DM 2140; 4 years' Realschule at DM 1224; 2 years' berufsbildende Schule at DM 1520.

5) 9 years' elementary school at DM 2140; 2 years' Berufsschule at DM 1224 .

The tax transfer ratios show the degree of the benefit or cost perhaps more clearly. Values above one indicate higher costs, those below one higher benefits. Evidently the highest educational -- and income -- group is not only best off in absolute terms but also in relative terms. The tax-transfer ratio is smallest, i.e. they pay only about one-third of the educational transfer in terms of education taxes. (Figure 12).

A word of caution should be added. The data derived for individuals in groups other than civil servants may exhibit some inconsistency. Many ifs were involved in the analysis. By comparison the analysis of civil servants appears more reliable. A quantitative comparison between the two over and beyond general patterns and tendencies does not seem called for.

d) An Analysis of Groups: The Case of the Civil Servants

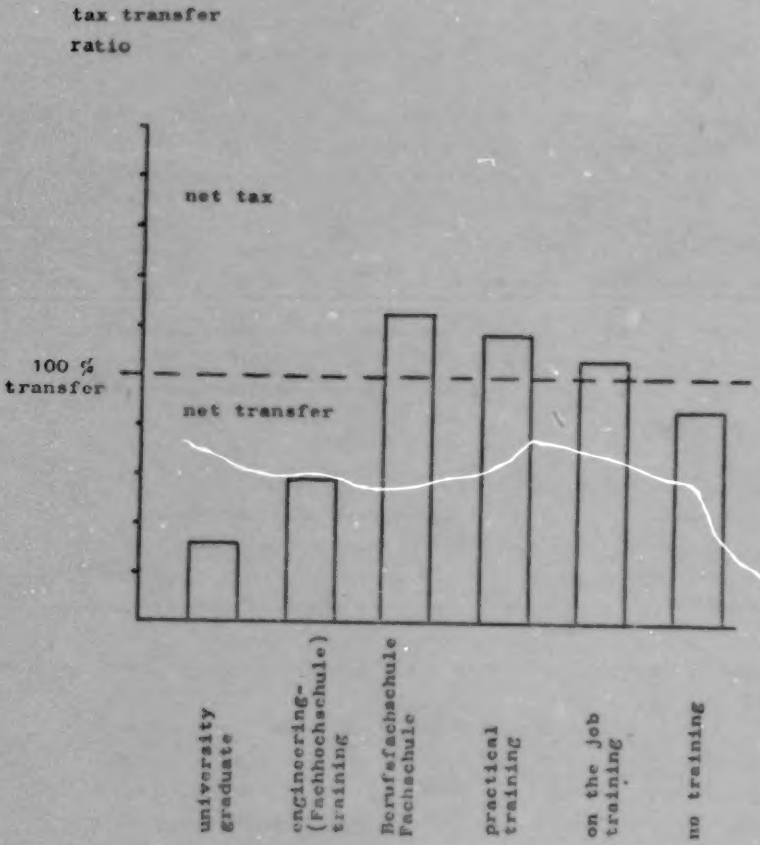
The question of who finances whose education has been attacked from one angle; i.e., does a redistribution between different educational groups occur. This question has been answered in the affirmative.

Another question suggests itself: Do entire economic groups who are heterogeneous with regard to their educational background generally finance their own education. It would be desirable to extend such an analysis to various groupings, such as sectors of an economy or regions. For lack of suitable data a more modest subject of analysis has to be chosen. Since the data on civil servants are most complete they shall be analyzed as a group.

The analysis of individuals led us to conclude that, at least when using raw, i.e., undiscounted tax and transfer data, the most highly educated group of civil servants (the university graduates) receive a net transfer, while the three lower groups pay a net tax.

Figure 12

Tax-Transfer Ratios Based on Undiscounted Transfer Receipts and Tax Payments in Different Occupations



In order to estimate group totals the modified individual values, i.e., those derived in the previous section, excluding retirement income, were multiplied by the number of civil servants in each group.

The results obtained for individuals, of course, also hold for the group as a whole. The system very clearly is of greatest advantage to university graduates.

As the percentage figures in Tables 27(a) and 27(b) show, the top-level civil service, which comprises 18.9 per cent of the total civil servants, receives a more than proportional share of the net life income (25.0 per cent if we do not discount income figures, 22.9 per cent if we discount them at a rate of 5 per cent. On the other hand over their lifetime they pay a more than proportional share of the education taxes (30.1 per cent if they are left undiscounted, 26.5 per cent at a 5 per cent discount rate).

Of course, the overproportional share of taxes for education paid by the top group is more than compensated for by the overproportional share of educational transfers received by this group. As a group the top-level civil servants receive an excess of DM 24,238 million over what they pay in taxes for education. If taxes and transfers are discounted at 5 per cent the excess transfer is reduced somewhat to DM 19,596 million.

All other career groups who are not university graduates pay a net tax, as we know from the analysis of individual receipts and payments. This net tax amounts to an estimated total of DM 10,599 million for these three career groups. Since the aggregation retains the basic patterns observed in individuals, a net transfer and not a net tax, is observed for discounted values. For example, at a 5 per cent rate of discount a net subsidy or transfer accrues to the three lower groups in a total amount of DM 18,461 millions.

The pattern of the relative distribution between the four career groups is illustrated more clearly in Figure 13. The relative distribution of the number of civil servants, net life income, life

Table 27(a)

Distribution of Number of Civil Servants, of Net Life Income, Net Life Education Tax, and Life Educational Transfers by Career Groups: Amounts Based on Civil Servant Income up to Age 65, Excluding Retirement Income (undiscounted 1973 figures)

career group	No. of civil servants 1)	in %	net life income in mill. 2)	in %	life education tax in mill. 4)	in %	life education transfer in mill. 6)	in %	transfer-tax residual group total in mill.
lower	177,739	12.075	123,929	8.3	4,462	6.5	3,423	4.2	- 1,039
middle	545,730	37.075	461,228	31.0	18,293	26.7	13,010	15.8	- 5,283
higher	470,660	31.975	529,711	35.7	25,168	36.7	20,891	25.4	- 4,277
top level	277,833	18.875	371,617	25.0	20,590	30.1	44,828	54.6	+ 24,238
total	1,471,962	100.000	1.486,485	100.0	68,513	100.0	82,152	100.0	

Table 27(b)

Distribution of Number of Civil Servants, of Net Life Income, Net Life Education Tax, and Life Educational Transfers by Career Groups: Amounts Based on Civil Servant Income up to Age 65, Excluding Retirement Income (1973 amounts discounted at 5 per cent)

career group	No. of civil servants 1)	in %	net life income in mill. 3)	in %	life education tax in mill. 5)	in %	life education transfer in mill. 7)	in %	transfer-tax residual group total in mill.
lower	177,739	12.075	24,972	9.6	864	7.5	2,704	5.5	+ 1,840
middle	545,730	37.075	83,559	32.1	3,412	29.3	9,899	20.0	+ 6,487
higher	470,660	31.975	92,345	35.4	4,139	36.2	14,273	28.8	+ 10,134
top level	277,833	18.875	59,563	22.9	3,030	26.5	22,626	45.7	+ 19,596
total	1,471,962	100.000	260,439	100.0	11,445	100.0	49,502	100.0	

1) Results of the Personnel Structure Survey of February 10, 1972.

Information of the Deutscher Beamtenbund, Bonn-Bad Godesberg, Communication Akt-Z. III-677-03/H-M, August 29, 1974.

2) Undiscounted net life income (including educational cash transfers) of civil servants see Tables 10 to 13 (+ 3 monthly net incomes, age 62).

3) Net life income discounted at 5 per cent (including educational cash transfers); computations follow the procedure outlined under "General Model", see Tables 10 to 13.

4) Undiscounted values of life education tax: 16 per cent of life income tax + 1.6 per cent of net life income (value added tax share) see Table 24.

5) Life education tax discounted at 5 per cent.

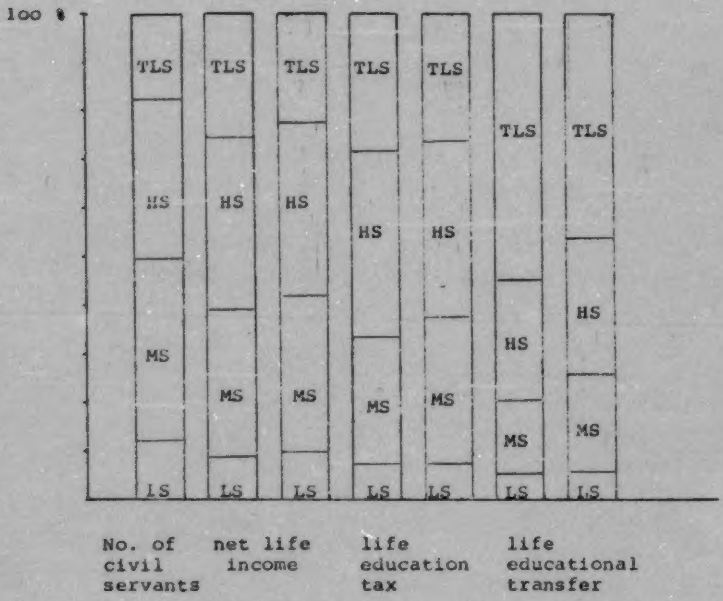
6) Life educational transfers: the sum of the cost of schooling attributable to a pupil and educational cash transfers.

7) Life education transfer discounted at 5 per cent, see Table 24.

Figure 13

Relative Share of Life Income, Life Education Tax and Life Educational Transfer Accruing to the Four Civil Service Career Groups[1)]

(values discounted at 5 per cent; undiscounted values)



TLS = top level service
HS = higher service
MS = middle service
LS = lower service

discounted values

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1) for a numerical representation see Tables 27(a) and (b).

education tax and life education transfer using undiscounted data appears in Table 27(a). Discounting values has the general effect of reducing the relative share of the higher income groups, who are also more highly educated. (See Figure 13).

If the group of civil servants were to finance its own education, this would imply that the sum total of all transfer-tax residuals would have to equal zero. This is evidently not the case. Even when values are not discounted transfers to all groups jointly exceed taxes by almost DM 14 million. If values are discounted the excess transfer is even larger.

Thus we have to conclude that the group of civil servants does not pay for its own education, but is subsidized rather massively by other groups.

3. A Comparison of Costs and Benefits of Higher Education as Reflected in Family Income

In our analysis we looked at cost of education to the public. A considerable share of the direct and indirect costs of education, however, is born by the family. Particularly the phase of higher education involves opportunity losses of income since the student does not receive as much income during his period of education as if he were employed.

In order to deduce how family income is affected by the opportunity losses due to education the life income flow of two families will be compared.

In the example investigated the father is a civil servant in lower civil service, while for the son two alternatives are simulated: (a) that he attains the same education and job as his father; and (b) that he attains university education and employment in the top-level civil service.

For the purpose of comparison the annual family income of both father and son in the lower civil service was treated as a base (100 per cent). The family income of the father in the lower civil service and the son in a top level service is expressed as a percentage of the former income.

Up to the time when the father reaches age 40 no differences are observed; in both cases the son attends school. In the case of the father lower / son top-level family, the total family income during the son's higher education is lower than that of the father lower /son lower service family (about 84.5 per cent). This income reduction totals about DM 34,145. During the time of the son's practical post graduate training (Referendar) the family's income is still 11.5 per cent lower than that of the family where both father and son are in the lower service.

Upon the completion of the son's practical post-graduate training following graduation, the father is 54 years old; the annual family income is now higher than that of the other family. Only several years later is the accumulated family income of both types of families roughly the same.

The total family income of father and son combined computed over the expected life span of the father is 28 per cent higher for the family with the son who reaches the "top-level" service.

Tables 28-29 show the time series of the fathers', the sons' and the families' annual income. A plot of the two annual family incomes appears in Figure 14.

The abscissa represents the father's age. It is assumed that fathers and sons follow a typical pattern of life outlined for representatives of the four civil service career groups in Tables 10 to 13.The lower civil servant is assumed to complete his military service at age 21, to marry at age 24, to have a first child at age 26, and his second at age 28. The top-level civil servant completes the military service at age 20 marries at age 29, has his first child at age 30, his second at age 33. His children are assumed to reach the same level of education as their father.

Table 28

Salary Data: Father and Son "Lower Civil Service"

Father's age	Son's age	Father's annual net income	Son's annual net income	Son's annual education cash transfer	(3) + (4) + (5)	
(1)	(2)	(3)	(4)	(5)	(6)	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16		4,202.--			4,202.--	
17		4,613.--			4,613.--	
18		5,149.--			5,149.--	
19		5,452.--			5,452.--	
20		5,452.--			5,452.--	
21						military service
22		7,613.61			7,613.61	
23		10,872.08			10,872.08	
24		12,261.58			12,261.58	
25		13,087.47			13,087.47	
26		14,336.47			14,336.47	
27		14,582.55			14,582.55	
28		16,009.05			16,009.05	
29		16,267.13			16,267.13	
30		16,267.13			16,267.13	
31		16,513.21			16,513.21	
32	7	16,513.21			16,513.21	
33	8	16,769.29			16,769.29	
34	9	16,769.29			16,769.29	
35	10	17,027.37			17,027.37	
36	11	17,027.37			17,027.37	
37	12	17,283.45			17,283.45	
38	13	17,283.45			17,283.45	
39	14	17,529.53			17,529.53	
40	15	17,529.53			17,529.53	
41	16	16,113.03	4,202.--		20,315.03	
42	17	16,113.03	4,613.--		20,126.03	
43	18	14,864.03	5,149.--		20,013.03	
44	19	14,864.03	5,452.--		20,316.03	
45	20	14,864.03	5,452.--		20,316.03	
46	21	14,864.03			14,864.03	military service
47	22	14,864.03	7,613.61		22,411.67	
48	23	14,864.03	10,872.08		25,736.11	
49	24	14,864.03	12,261.58		27,125.61	
50	25	14,864.03	13,087.47		27,951.50	
51	26	14,864.03	14,336.47		29,200.50	
52	27	14,864.03	14,582.55		29,446.58	
53	28	14,864.03	16,009.05		30,873.08	
54	29	14,864.03	16,267.13		31,131.16	
55	30	14,864.03	16,267.13		31,131.16	
56	31	15,532.13	16,513.21		32,045.34	
57	32	15,532.13	16,513.21		32,045.34	
58	33	15,532.13	16,769.29		32,301.42	
59	34	15,532.13	16,769.29		32,301.42	
60	35	15,532.13	17,027.37		32,559.50	
61	36	15,532.13	17,027.37		32,559.50	
62	37	15,532.13	17,283.45		32,815.58	
63	38	15,532.13	17,283.45		32,815.58	
64	39	15,532.13	17,529.53		33,061.66	
65	40	15,532.13	17,529.53		33,061.66	
63	38	11,943.--	17,283.45		29,226.45	
64	39	"	17,529.53		29,472.53	
65	40	"	17,529.53		29,472.53	
66	41	"	16,113.03		28,056.03	
67	42	"	16,113.03		28,056.03	
68	43	"	14,864.03		26,807.03	
69	44	"	14,864.03		26,807.03	
70	45	"	14,864.03		26,807.03	
71	46	"	14,864.03		26,807.03	
72	47	"	14,864.03		26,807.03	
73	48	"	14,864.03		26,807.03	
74	49	"	14,864.03		26,807.03	
75	50	"	14,864.03		26,807.03	
76	51	11,943.--	14,864.03		26,807.03	

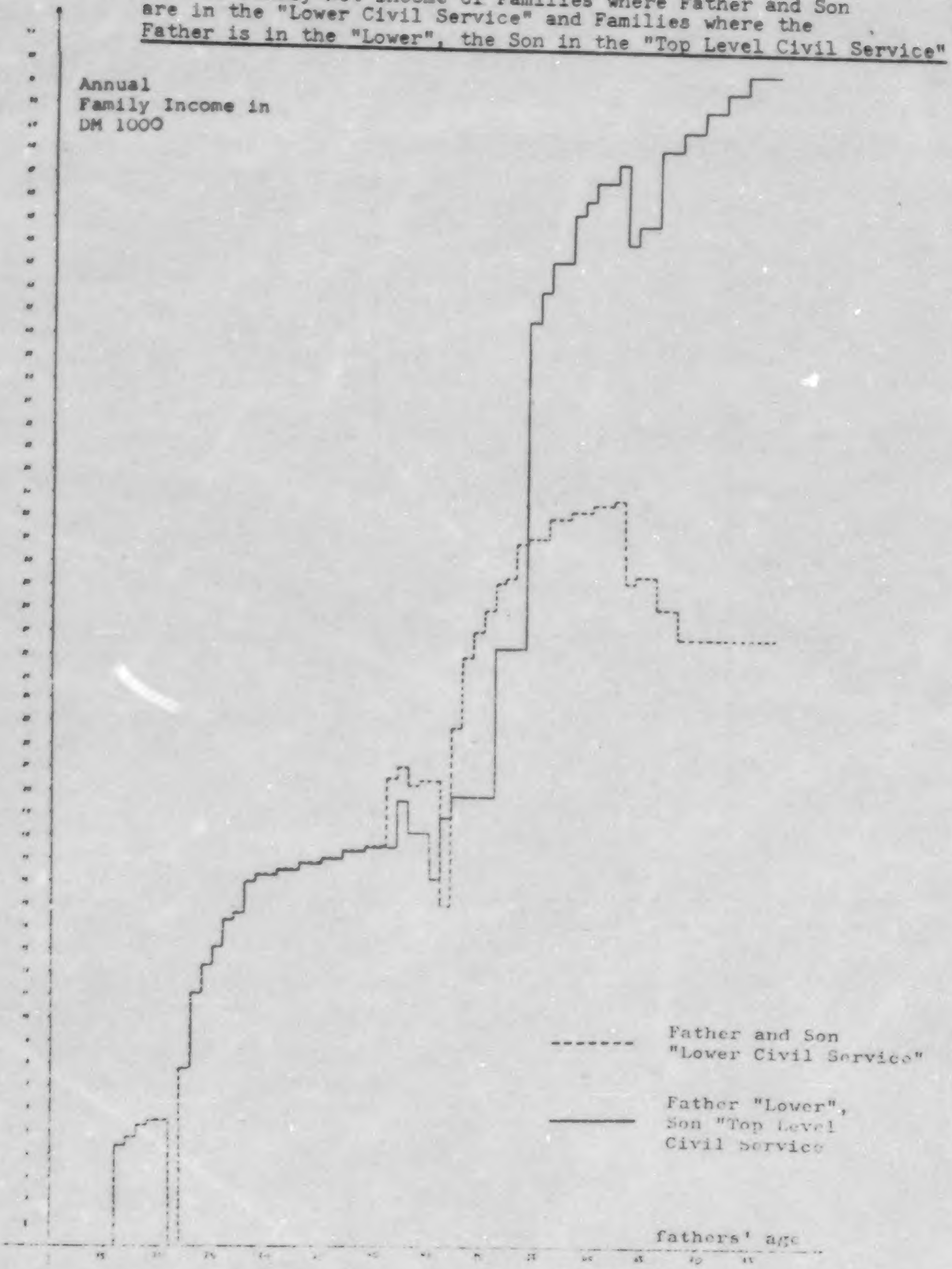
Table 29

Salary Data: Father "Lower", Son "Top Level Civil Service"

Father's age	Son's age	Father's annual net income	Son's annual net income	Son's annual education cash transfer	(3) + (4) + (5)	
(1)	(2)	(3)	(4)	(5)	(6)	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16		4,202.--			4,202.--	
17		4,613.--			4,613.--	
18		5,149.--			5,149.--	
19		5,452.--			5,452.--	
20		5,452.--			5,452.--	
21						
22		7,613.61			7,613.61	military service
23		10,872.08			10,872.08	
24		12,261.58			12,261.58	
25		13,087.47			13,087.47	
26		14,336.47			14,336.47	
27		14,582.55			14,582.55	
28		16,009.05			16,009.05	
29		16,267.13			16,267.13	
30		16,267.13			16,267.13	
31		16,513.21			16,513.21	
32	7	16,513.21			16,513.21	
33	8	16,769.29			16,769.29	
34	9	16,769.29			16,769.29	
35	10	17,027.37			17,027.37	
36	11	17,027.37			17,027.37	
37	12	17,283.45			17,283.45	
38	13	17,283.45			17,283.45	
39	14	17,529.53			17,529.53	
40	15	17,529.53			17,529.53	
41	16	17,529.53			17,529.53	
42	17	17,529.53		1952,--	19,481.53	
43	18	16,113.03		1952,--	18,065.03	
44	19	16,113.03		1952,--	18,065.03	
45	20	16,113.03			16,113.03	military service
46	21	16,113.03		2678,--	18,791.03	
47	22	16,113.03		3571,--	19,684.03	
48	23	16,113.03		3571,--	19,684.03	
49	24	16,113.03		3571,--	19,684.03	
50	25	16,113.03		3571,--	19,684.03	
51	26	14,864.03	10,979.--		25,843.03	
52	27	14,864.03	10,979.--		25,843.03	
53	28	14,864.03	10,979.--		25,843.03	
54	29	14,864.03	25,756.64		40,620.67	
55	30	14,864.03	27,031.64		41,895.67	
56	31	15,532.13	27,673.52		43,205.65	
57	32	15,532.13	27,673.52		43,205.65	
58	33	15,532.13	29,780.40		45,312.53	
59	34	15,532.13	30,391.19		45,923.32	
60	35	15,532.13	31,214.27		46,746.40	
61	36	15,532.13	31,214.27		46,746.40	
62	37	15,532.13	32,013.35		47,545.48	
-----	-------	----------	----------	----------	--------	
63	38	15,532.13	32,013.35		47,545.48	
64	39	15,532.13	32,824.43		48,356.56	
65	40	15,532.13	32,824.43		48,356.56	
-----	-------	----------	----------	----------	--------	
63	38	11,943.--	32,013.35		43,956.35	
64	39	"	32,824.43		44,767.43	
65	40	"	32,824.43		44,767.43	
66	41	"	36,142.24		48,085.24	
67	42	"	36,142.24		48,085.24	
68	43	"	36,992.24		48,935.24	
69	44	"	36,992.24		48,935.24	
70	45	"	37,832.24		49,775.24	
71	46	"	37,832.24		49,775.24	
72	47	"	38,676.24		50,619.24	
73	48	"	38,676.24		50,619.24	
74	49	"	39,472.24		51,415.24	
75	50	"	39,472.24		51,415.24	
76	51	11,943.--	39,472.24		51,415.24	

Figure 14

Plot of Family Net Income of Families where Father and Son are in the "Lower Civil Service" and Families where the Father is in the "Lower", the Son in the "Top Level Civil Service"



At age 21 the father is drafted, which accounts for his sudden drop in income during this period. Up to the time when the fathers reach age 40 both families draw the same income.

The son, who follows the same career as his father (lower civil service) enters into gainful employment when his father reaches age 41. After five years he is drafted. This accounts for the drop in his income at the time his father reaches age 46. After his return to work the family income rises up to the father's retirement (62 or 65 respectively). After his retirement the family experiences a reduction in income since the son's income does not increase any longer. On the contrary, since his own children are no longer dependents, he no longer receives the child bonus, which explains the further drop in the family income, when the father has reached age 66 and 68, respectively.

Looking at the second family we observe a somewhat different pattern. The son completes his military service one year earlier than the other son. This father's income during this period is higher, since he still receives the child bonus for his son, who has not yet completed his education. The son receives a stipend under the Bundesausbildungsförderungsgesetz during the last 3 years of the Gymnasium and during his studies at the university. This stipend does not suffice to raise family income to the level attained by the other family where both, father and son, are working. Following his graduation the son enters a three year practical post graduate training as Referendar, during which he receives a maintenance support but no salary. Following his graduation his father no longer receives a child bonus for him and consequently his income drops. The combined income of both father and son still falls short of that of the other family. Upon completion of his training period the son enters the top-level civil service and the family income at this point rises above that of the other family. The father is now 54 years old. The family's income continues to rise up to the father's retirement whereupon a temporary reduction in family income is suffered. Since the son has not reached his top income, his increased income soon overcompensates his loss.

The differences in family income can be seen quite clearly in the plot in Figure 14. The absolute differences are also shown in Table 30, column (4). The combined income of the father lower civil service / son top-level civil service family is expressed at percentage of the other family's income. Furthermore the rows identified by letters show cummulative values for relevant periods. The time series information contained in Table 30, column (5) is plotted in Figure 15.

The cumulative data show that up to the time the two fathers reach age 57 the cumulative family income of the family with both father and son in the lower civil service is higher. Looking at the father's life span up to age 76, and not including the grand children's income the family, where the son attained university education,achieves 128 per cent of the other family's income.

We can conclude that a considerable opportunity loss is caused by the higher education of the son. Particularly, if we consider that father and son generally do not stay in the same household once the son marries, the income pattern suggests a sizable intergeneration transfer from father to son, since the father presumably contributes to the support of his son at least up to the son's graduation, whereas it appears less likely that the son supports the father later in his life.

4. The Equity or Inequity of the Fiscal System 1)

So far this analysis has been carried out solely for the educational system as an isolated and separate part of the public household. The questions of allocative and distributive effects of the educational system was confined to determining whether or not the recipient of an educational transfer eventually pays the public educational system back what he has received. The conclusion that could be drawn was that at least those with higher education did not.

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1) The approach taken in this section is based on a suggestion made by Ministerialdirigent Dr. Roeloffs of the Federal Ministry of Education and Science, Bonn.

Table 30

Family Income Differential between Families where Father and Son are in the "Lower Civil Service" and Families where Father is in the "Lower", Son in the "Top Level Service"

Age of Father (1)	Net Income of Group 1 Father & Son "Lower Civil Servant" (2)	Net Income of Group 2 Father - "Lower" Son - "Top Level" Civil Servants (3)	Difference (3) - (2) (4)	(3) as percentage of (2) (5)
7 … 40				
a	316 660.77	316 660.77	-	100
41	20 319.03	17 529.53	- 2 789.50	86.3
42	20 126.03	19 481.53	- 644.50	96.8
43	20 013.03	18 065.03	- 1 948.00	90.3
44	20 316.03	18 065.03	- 2 251.00	88.9
45	20 316.03	16 113.03	- 4 203.00	79.3
46	14 864.03	18 791.03	+ 3 927.00	126.4
47	22 411.07	19 684.03	- 2 727.04	87.8
48	25 736.11	19 684.03	- 6 052.08	76.5
49	27 125.61	19 684.03	- 7 441.58	72.6
50	27 951.50	19 684.03	- 8 267.47	70.4
b	219 175.07	186 781.30	- 32 393.77	85.2
a+b	535 835.84	503 442.07	- 32 393.77	93.9
51	29 200.50	25 843.03	- 3 357.47	88.5
52	29 446.58	25 843.03	- 3 603.55	87.8
53	30 873.08	25 843.03	- 5 030.05	83.7
c	89 520.16	77 529.09	- 11 991.07	86.6
a+b+c	625 356.00	580 971.16	- 44 384.84	92.9
54	31 131.16	40 650.67	+ 9 519.51	130.6
55	31 131.16	41 895.67	+ 10 764.51	134.6
56	32 045.34	43 205.65	+ 11 160.31	134.8
57	32 045.34	43 205.65	+ 11 160.31	134.8
d	126 353.00	168 957.64	+ 42 604.64	133.7
a+b+c+d	751 709.00	749 928.80	- 1 780.20	99.8
58	32 301.42	45 312.53	+ 13 011.11	140.3
59	32 301.42	45 923.32	+ 13 621.90	142.2
60	32 559.90	46 746.80	+ 14 186.90	143.6
61	32 559.90	46 746.80	+ 14 186.90	143.6
62	32 815.58	47 545.48	+ 14 729.90	144.9
e	162 537.42	232 274.13	+ 69 736.71	142.9
a+b+c+d+e	914 046.42	982 002.93	+ 67 956.51	107.4
63	32 815.58	47 545.48	+ 14 729.90	144.9
64	33 061.46	48 356.36	+ 15 294.90	146.3
65	33 061.46	48 356.36	+ 15 294.90	146.3
f	98 938.50	144 258.20	+ 45 319.70	145.8
a+b+c+d+e+f	1 012 984.92	1 126 261.13	+ 113 276.21	111.2
63	29 226.45	43 956.35	+ 14 729.90	150.4
64	29 472.53	44 767.43	+ 15 294.90	151.9
65	29 472.53	44 767.43	+ 15 294.90	151.9
66	28 056.03	48 085.24	+ 20 029.21	171.4
67	28 056.03	48 085.24	+ 20 029.21	171.4
68	26 807.03	48 935.24	+ 22 128.21	182.5
69	26 807.03	48 935.24	+ 22 128.21	182.5
70	26 807.03	49 775.24	+ 22 968.21	185.7
71	26 807.03	49 775.24	+ 22 968.21	185.7
72	26 807.03	50 609.24	+ 23 802.21	188.8
73	26 807.03	50 609.24	+ 23 802.21	188.8
74	26 807.03	51 415.24	+ 24 608.21	191.8
75	26 807.03	51 415.24	+ 24 608.21	191.8
76	26 807.03	51 415.24	+ 24 608.21	191.8
g	385 546.84	682 546.85	+ 297 000.01	177.0
a+b+c+d+e+f+g	[illegible]	[illegible]	[illegible]	[illegible]

neutral

opportunity loss in income during son's university education

DM 32,393.77; group 2 receives 85.2 per cent of group 1's income

by the time father is 50 group 2 has a cumulative life income of 93.9 per cent of group 1

opportunity income loss of group 2 during practical training of son DM 11,991.07; group 2's income is 86.6 per cent of group 1's

by the time father reaches age 57 the cumulative family incomes of both groups are approximately equal

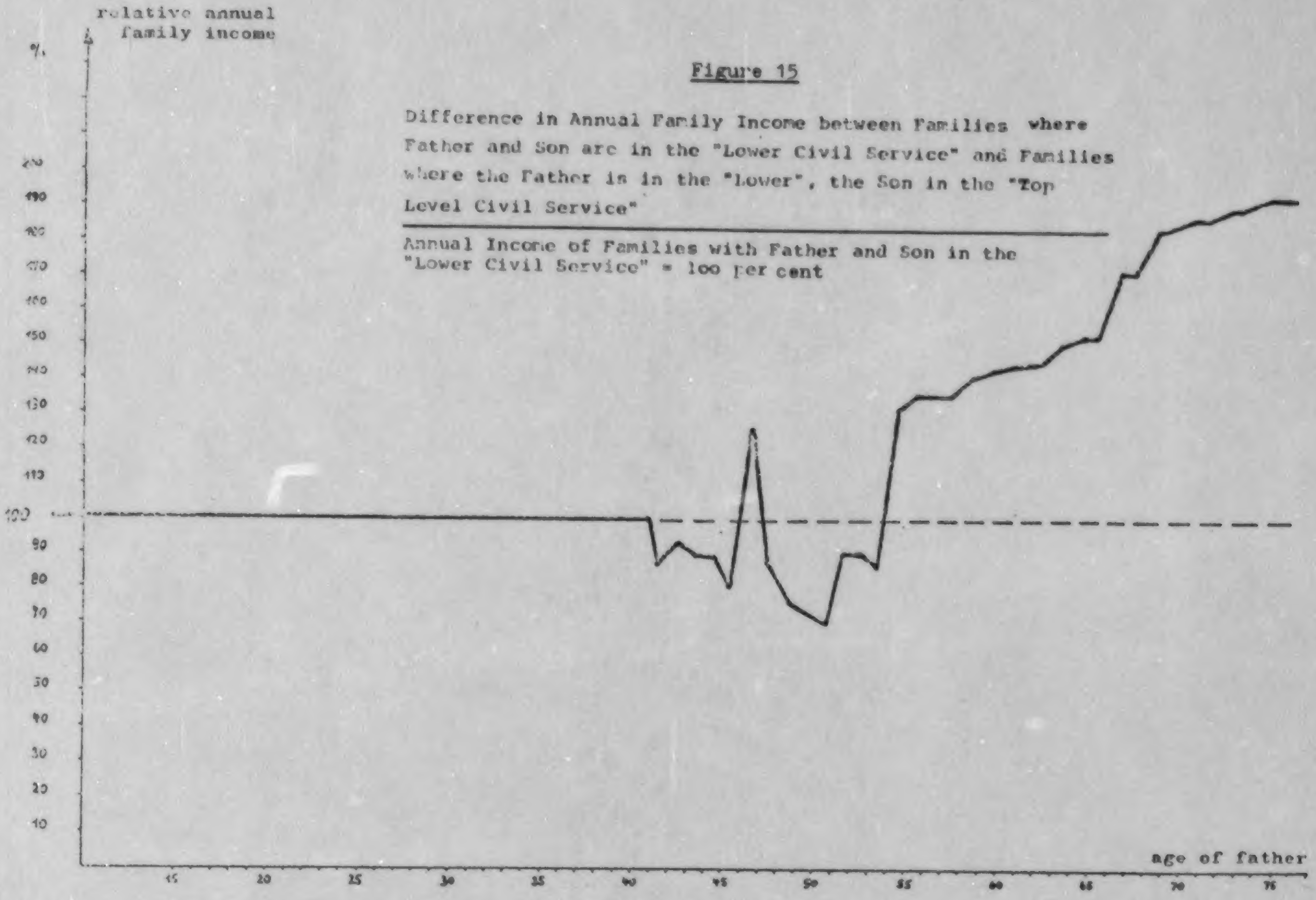

Figure 15

Difference in Annual Family Income between Families where Father and Son are in the "Lower Civil Service" and Families where the Father is in the "Lower", the Son in the "Top Level Civil Service"

Annual Income of Families with Father and Son in the "Lower Civil Service" = 100 per cent

Whether such a system can be considered fair or not obviously is a question loaded with complexity. But one thing we can say definitely is, that it does not solely depend on the allocative or distributive effect of the education budget. What tangible and intangible benefits a person or groups convey upon society at large can hardly be ascertained. But one small step in this direction, however, can be taken without entering upon a path strewn with over-elaborate systems of assumptions.

As a partial criterion of equity we investigate whether the residual net tax paid by an individual, when we subtract the educational transfers received from the total life taxes paid by him, exceeds or falls short of the average residual tax. We would expect in an equitable system, which levies taxes on the basis of any of the accepted principles, that the net residual still retains a certain progressivity. The higher, more educated groups ought to pay a higher than average residual tax.

This equity criterion was applied to the four civil service career groups. In Table 31 the summary computations are presented. As is well known from the previous analysis the life taxes (income tax plus value added tax) as well as the educational transfers are highest for the more highly educated. The residual tax T_i^R of the i^{th} group is obtained by substraction of transfers from total taxes (not education taxes).

The last column of Table 31 shows their values. The negative signs indicate below average residual taxes, the positive sign above average residual taxes. The two higher career groups thus pay above average residual taxes, the two lower groups below average residual taxes. These results suggest that higher income groups finance a more than proportional share of the public household.

In the last resort, of course we cannot say whether the fiscal system is progressive or regressive. While the tax system appears

Table 31

The Equity of the Fiscal System: Deviations from Average Residual Tax

Career Group	T_i	C_i	$T_i-C_i=T_i^R$	T_A^R	$T_i^R-T_A^R$
lower civil service	181 344	19 260	162 084	287 928	- 125 844
middle civil service	245 125	23 840	221 285	287 928	- 66 643
higher civil service	394 799	44 386	350 413	287 928	+ 62 485
top level civil service	554 833	161 348	393 485	287 928	+ 105 557

T_i = life income and value added tax of person i

T_A^R = average life tax minus life education tax per civil servant

T_i^R = life tax minus life education tax of person i

C_i = education transfer to person i

T_L^R = 28 809 Mill. DM

T_M^R = 120 762 Mill. DM

T_H^R = 164 925 Mill. DM

T_T^R = 109 323 Mill. DM

T^R = 423 819 Mill. DM

T_A^R = 287 928 DM

T_L^R, T_M^R, T_H^R, T_T^R = group total of life tax minus life education tax for all civil servants in the "lover", "middle", "higher" and "top level" services, respectively progressive we have to attempt to attribute the benefits of public expenditure to income groups. In the absence of such a step, however, we cannot conclude definitely whether or not the system is equitable. As far as the revenue side of the public households is concerned a certain progressivity among groups with different levels of education seems to exist.

III. Efficiency and Equity of the Educational System: Some Thoughts for Reform

An educational system can be said to be inefficient if it does not use the available human resources in the best possible manner. This implies that if those able to utilize higher levels of education do not receive the same education, society looses: The actual GNP is likely to be less than the potential GNP which would result from a more adequate use of potential human resources.

Similarly it can be argued that an educational system is inequitable if it tends to distribute its benefits in such a way that the middle and upper income groups are the major recipients of these benefits. This norm seems fairly acceptable when one considers that most nominal tax schedules of the Western countries embody some kind of progressive equity norm. (This is so even though the actual tax incidence is considerably less than the nominal tax incidence of the middle and upper income groups.)

How then can both the efficiency and the equity of the educational system be improved?

Efficiency could be improved if those able could be led or induced to actually utilize higher levels of education. In order to provide this inducement a set of economic, social, and cultural stimuli may be required.

1. At the level of the economic system incentives would have to be provided which would be so attractive as to keep the individual pupil or student away from the labour market. No doubt, if a student actually could calculate the implicit educational transfer he is receiving by proceeding with his education his assessment might be somewhat different. However, the only instrumental variable at the economic level consists of in-cash or in-kind subsidies or transfer payments made to the individual. These transfer payments have to be at least as high as the subjective evaluation

of the present cash income foregone by not joining the labour market and dropping out of school. These stipends therefore would ideally vary from individual to individual depending upon his subjective evaluation not only of the cash value of the stipend but also of the present value of implicit subsidies conveyed by an educational process. Undoubtedly it would be very difficult for any public programme to administer a subsidy or stipend programme along such individual lines. Nonetheless, a stipend based on merit and need criteria could be set sufficiently high so as to motivate a good part of those who are presently dropping out to continue their education. The essence of this economic approach consists in going out into the labour market and bidding through the price mechanism for the more able student.

2. Such purely economic measures, however, may not be entirely successful as long as some of the basic problems at the social and cultural level are not tackled. For example, the group attitudes towards education may have to be influenced through a systematic campaign in the mass media or through a campaign through local churches, clubs, and so on. Such strategies may be particularly important in the case of any identifiable group whose participation record is very poor.

3. Changes at the level of cultural and individual attitudes towards education may have to augment the other strategy at the level of group influence. Perhaps the only place where such individualized interaction with gifted but economically poor students is possible is at the level of the primary school, where special councelling may be provided.

Perhaps what is needed is a program which combines economic, social, and cultural forces in order to shape not only the attitude of the individual child but also that of his parents and reference group and which reinforces such cultural and social stimuli with tangible economic incentives. Only by attracting more children from the lower social strata can the educational system become more efficient.

The equity of the educational system could be improved via two processes:

1. If educational subsidies were granted on the basis of both merit (scholastic ability) and need (family income, family size, etc.), the net benefit of education would not so clearly accrue to the middle and upper income groups. Accordingly there would be a redistribution of the net subsidy of education favoring the lower income groups, thus enhancing the equity of the system.

2. Yet another strategy to improve efficiency and equity could be pursued via the exchange processes of the market economy: If some of the currently discussed proposals for an "education bank" were implemented, individuals would receive loans during their period of study which they would then repay from their future income earned. This income is higher because of their higher educational attainment. This strategy is particularly applicable to middle and upper social strata: They are the only ones who can afford to take the risk of assuming considerable debt liabilities at a rather early age.

When public education is viewed as a mixed good then by necessity, no single instrument of financing can be used exclusively. In so far as education represents a private benefit or a private good to the individual who receives it, it should be supplied on the basis of the benefit principle. Accordingly, the higher an individual values education the more he will be willing to pay for it; hence the higher tuition fees he will be willing to incur. This will be particularly the case if he could determine the level of education he would like to "buy" by incurring debts at an early age.

Education represents, however, a public good too: It is characterized by externalities of a positive nature (a more educated society tends to provide benefits also for those who are less educated). An education can thus also be characterized as a public good. It should therefore be subsidized.

The ideal educational system would thus have to be based on a careful intermingling of the exchange and grants instruments of financing. These would have to be geared to a particular social group. In practice this would mean that individuals of lower social and economic background would not only receive free education but they would also receive large stipends to motivate and enable them to pursue higher levels of education. Children of middle and higher income and social status groups in turn would have to pay at least partly for the education through tuition fees in line with their willingness and ability to pay. Subsidies would have to be eliminated in the latter case to a varying degree.

The outline of the reforms sketched in these paragraphs no doubt implies an ability on the part of the state to carefully differentiate its instruments of financing according to particular needs of the individual and the social group to which he belongs. Furthermore, such instruments are also likely to raise difficulties of a legal and political nature. They require further a rather refined micro-data base on the basis of which macro-educational policy can be formulated. There is nothing that would prevent us from constructing such a micro-educational simulation model for particular cities, regions or entire nations. On the basis of this model alternative educational strategies could be simulated based on some carefully selected samples of pupils and students. Lastly, through better information concerning the social and economic background of the child a more consistent and purposeful set of instruments could be devised which would hopefully increase participation of the able among the needy while making it more difficult for the not so able among the wealthy to pursue a career for which they may not be so well suited.

IV. Appendix: Historical Foundations of the German Educational System 1)

As is the case for other Central and Western European countries, the German educational system was influenced by the ideas of education formulated by the Greeks and the Romans, and by Christian values.

The Greeks already saw in physical education, religion, and moral education the means for the stabilization of the state. Their ideal was that of the religious as well as heroic nobleman. Particularly the Spartans emphasized an education for war and for the state. The Athenian ideals in turn placed weight on rational and spiritual education in the context of their "gymnasium". This institution was thus above all a mechanism for individual education and only secondarily an institution for stabilizing the state. This concept in turn was supplanted by an emphasis on rational education and on a world culture. The highest ideal was that of the educated cosmopolitan.

The Roman system of education emphasized above all education for service to the state. But this task was left to the individual family. Ultimately, however, it was supplanted by the influence of the Greek culture in the course of the 5th century A.D.

Of the many occidental mysteries and religions of salvation Christianity gained the largest following. The first and only Christian high-schools or universities of the old ages, namely the catechism schools, served to transmit the doctrines of Christian philosophers. Finally, there was a synthesis between the Greco-Roman and the Christian elements.

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1) For a more detailed treatment see:
Weimer, Hermann and Weimer, Heinz, Geschichte der Pädagogik, Berlin: Verlag de Gruyter, 1974, pp. 152-193.

Among the ancient Germans there was no organized form of education. Skills of trade, war, and music as well as moral conceptions and religious teachings were passed on from father to son, from the old to the young.

With the adoption of Christianity, the Germans were exposed to the Christian educational system. It embodied not only values of work and religion but also of culture and economic activities. The Church developed an educational system centered about the church schools and the monastery schools which were open to all privileged groups. These schools lasted for well-nigh over a thousand years; they were the only schools known in the middle ages. The monastic school system started with the novitiate. Teaching consisted of topics such as reading, writing, and the acquisition of the Latin language. Of special interest in the middle ages were the parochial schools in the villages which served to educate the boys waiting at mass as well as to spread the general Christian doctrines within the village.

Charlemagne attempted to integrate both education institutions into one unified educational system. The early medieval schools were institutions for the education of clergymen who in turn were not only the religious teachers but also teachers of the youth and legal and political advisors. In the late middle ages three social groups utilized three different types of educational processes: The educated clergyman was taught religious and scholarly matters. The knightly warrior practised martial skills. And the "Buerger" acquired trading skills. The class of farmers which was gradually losing more and more of its freedom received also the worst kind of education, if any at all. Out of the group of clergymen the movement started which emphasized scholarly learning outside of parochial schools. The newly formed cooperation of teachers and students was called a "university". Its first and best known was that of Paris. The "studium generale" was completed with the title of Doctor and lead to the role of the scholar.

The "Buergers" taught their young in the context of the trading groups, namely the "Guilds ". In addition to the trading skills they acquired later-on also a more general type of education. In so-called "Stadtschulen" (city schools) the subjects reading, writing, arithmetic and some Latin were taught to the sons and to a few daughters of rich trading and handicraft families. Children of farmers were not admitted. With the flourishing of trade the first "German" or "Schreibschulen" were started which were the predecessors of purely secular and national education for the people.

The Humanist movement led to the rebirth of the classical values emphasizing the free development of the personality within the secular context and through the means of rational thought. The highest ideal was that of the sensitive and educated cosmopolitan. Apart from reading, writing, and arithmetic the classical languages of the antiquity were also taught. At the end of the 16th century the religious wars of the reformation affected the monastic movement. At the influence of Luther, and particularly through the Augsburg Religious Peace (1555) the princes obtained the right to determine the religion and to influence the educational system of their domain. This led to a more unified and regulated system of education. Apart from the technological faculty the faculties of law gained an importance at the university as its graduates were required as civil servants for the maintenance of the territorial regime. As an antithesis to the protestant humanistic movement, the catholic movement culminated in the founding of the Jesuit order. The Jesuits emphasized the humanistic ideals in education. Until the second half of the 16th century they organized the total educational system, from the Latin school to the university.

The lower social classes received education only through the impetus of the Protestant movement which emphasized the need for education and for general schools for all (including girls) in order to transmit religious scriptures. Gradually the Sunday schools gave way to general "German schools" which were open also to girls (who thus far could be educated in Nunneries).

Under the impact of rationalism an emphasis was placed on the taming of nature with the help of modern science. Apart from rationalist philosophy the German language was emphasized and great care was taken to preserve its purity. Plans were developed to standardize and unify the educational system and to regulate the content as well as the form of the educational process. Teaching at the primary level (which thus far emphasized only catechism, bible reading, religious songs and writing) was extended to arithmetic, natural science and life science, geography, etc.

As an antithesis to the rationalist movement, the pietistic movement emphasized more strongly religious values. It lead to the extension of primary school education in the form of so-called Sunday or evening schools. In towns it lead to the founding of a new type of school, the "Realschule" which was urgently required by the state. On the other hand the education of girls was left well-nigh entirely to private institutions.

Under the impact of Neo-humanism which originated in England the topic of philosophy (which was thus far only an aid in the study of theology and law) was raised to the status of an independent discipline.

In the beginning of the 19th century, a well-worked out educational law was passed. It provided for three steps: elementary school, city school, and gymnasium, all of which were to be directed towards a unified purpose. In the area of elementary schools the clergymen obtained stronger influence in supervising the activities of the other teachers which were viewed still as servants of the church. On the other hand liberalism propagated a system of teachers' training which was to be largely independent of the church. It became successful only towards the end of the 19th century. As a novum a curriculum for high schools was introduced which emphasized for the more advanced professions of practical life the acquiring of a foreign language as well as of mathematics and of other subjects. The number of schools serving the masses was enlarged, the income of teachers was raised and support was initiated for those who did not have adequate means.

In the second half of the 19th century Bismarck was responsible for the general advancement of many areas including education. Realschule was further extended, the Gymnasium was reformed, and professional schools for industry, agriculture, and forestry were developed. Furthermore and finally the education of women was also made the responsibility of the state. This resulted in Gymnasia for girls who obtained the right to attend universities. Furthermore professional schools were started for the various crafts. This development was further advanced at the end of the 19th and the beginning of the 20th centuries.Furthermore, the universities were obliged to accept also the graduates of Real-gymnasien and Oberrealschulen. This again lead to an enlarged enrollment of students, to the founding of the universities, technical universities, and of schools of trade at the university level.

The Prussian curricula of 1892 carried through the order of Emperor Wilhelm II, to have more hours of physical education, to abolish Latin composition, to develop and practise the German language and to study German history. In 1908 the girls' school of Cologne was also included among the higher schools of learning. This provided girls with the opportunity of passing the high-school completion examination and to make them eligible for university education.

Free education, however, existed only at the level of elementary schools which gained pupils through the migration of workers into towns. The Reichsgewerbeordnung of 1900 furthermore made it obligatory for apprentices to attend craft schools. In 1920 the four year Grundschule became obligatory for all children between the ages of 6 to 10. The responsibility for the conduct of the school system after the 10th year of the child was in the hands of the German States (Länder). In 1920 and again in 1925 the state of Prussia formulated the guiding principles of the curricula. Accordingly not only the acquisition of knowledge and rational faculties but also artistic and physical education were treated as equivalent elements of the educational process. Parental boards and pupils' commission were a sign of a less authoritarian educational system. The "German Man" was again placed in the center of education. The humanistic ideal of general education lost its emphasis.

In the period 1933 - 1945 the overall educational system was in the hands of the Reichsministerium für Wissenschaft, Erziehung und Volksbildung. The principle of performance became the general basis of education. In 1938 school attendance became obligatory for 8 years and, if the obligation to learn a craft was included, for 10 to 11 years. The whole higher educational system was restructured. In the place of the many types of basic institutions a general Oberschule (high school) was established. English became the first and Latin the second obligatory language. The Oberschule consisted of a natural science and a mathematics branch on the one hand, and a linguistic branch on the other. Apart from this unified system some special national-political educational institutions and "Adolf Hitler Schools" were established in order to educate the political elite. In 1945 the German educational system came to a complete standstill as a consequence of the war.

After 1945 the educational system was reestablished along the lines of the curricula in force prior to 1933. The unity of the educational system was discontinued again. Directive No. 54 of the General Control Commission of 1947 established the postulates for the whole educational system: Free school admissions, free educational materials, equal educational opportunities for all, a six year basic school and on top of that higher schools. School attendance became obligatory until age 15. The present structure of the German educational system can be noted from Figure 1.

This historical overview already indicates that the founding and development of schools essentially responded to the needs of particular social classes and the aims of the governing groups. As such they essentially reflect the prevailing social order.

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A Comment on Pfaff and Fuchs

by

Richard Layard

I shall confine myself to the second part of the paper which deals with the effect of state educational finance upon income distribution. I shall also offer some more general remarks on the use of education as an equalising device.

Measuring the distributive impact of state educational finance

The authors' main analysis appears in part 2 of the paper, the key table being Table 15. Here they estimate for differently-educated categories of civil servants (and, subsequently, of private employees), the present value of (a) the educational transfer they receive from the state in cash and in kind (valued at cost) and (b) the taxes they pay that are used to pay for education. The conclusion is that at a zero discount rate all categories except the top are net losers, while at interest rates of 5 per cent or over all are net gainers. "Thus it can be argued that the lower income groups on balance tend to subsidise the higher income groups via the educational system". From this they draw various policy conclusions, including the need to reduce higher education subsidies, except to the children of the poor.

There are a number of problems with their approach, though (for different reasons) I agree with their policy conclusions. First they are attempting to assess the *total* impact of the educational system upon income distribution. This is both extremely difficult, and not necessary in order to evaluate any specified policy change. When the incidence of any set of financial arrangements is being assessed, one is comparing the income distribution that exists under those arrangements with the one that would exist if some specified alternative was in force. The alternative implicit in the paper is one in which the state played no part in educational finance, so that each individual was relieved of both the benefits and tax burdens implied in existing arrangements. Clearly a world so different from our own would have a different set of general-equilibrium wages and prices and so on, but if one could estimate what it would be like it would be an interesting exercise. To what extent do the authors tell us the answer?

Apart from ignoring the general equilibrium problems (which are very intractable) they seem to me to gloss over problems on both the benefit side and the cost side. On the benefit side they assume that the benefit to A of £x of state educational expenditure on him is £x. But this is only so if the individual would in any case have purchased the education and is now relieved of the cost by the state. If state educational finance leads to more education being provided, the benefits of the additional education have to be measured by the present value to the extra individuals educated of the change in their lifetime monetary and psychic income streams. Crude calculations of the monetary effects can be got from earnings functions, but to allow in addition for psychic effects one has probably to attempt a measure of the change in consumers' surplus using an estimated demand curve for education.

Turning to the cost side, the authors are implicitly making some steady state assumption about the present system i.e. that those being educated now will end up paying for the education of a similar number of people in future. In this case one cannot just use the present educational tax rate without seeing if it will indeed do that. Unless specific assumptions are made to the contrary, it would seem appropriate to ensure that the government's education budget is balanced in the sense that each cohort pays for its own education (or, if not, that some explicit assumption is made about the relation between the rate of economic growth and the interest rate). The authors do at one point say this, but then deduce from the positive gain of all civil servants (at $i \geqslant 0.05$) that civil servants must be being subsidised by the rest of the community. This seems unwarranted. Instead it would have been better to select different rates of education tax for each interest rate, such that in each case the total civil servants' education budget balanced. The assumption here would be that civil servants are representative of the community as a whole, which is surely the basis on which they were selected for study.

However, I guess that even if the amendments I suggest had been adopted the analysis would still show that the educational system transferred from poorer to richer, as judged by its effects on children viewed without regard to their family origin. However, this ignores the crucial fact that education affects not only the children who are educated but also their parents. Older analyses of the effect of education on income distribution (by Nicolson and others) in fact allocated the net benefits of education as between income groups of parents classified by family size. The current analysis ignores altogether the income of parents and the size of family of the educated person, both of which of course affect the standard of living not only of the parent but also of the child when he is young. To allow for this is very difficult. But its relevance is clear. For state finance for compulsory education (assuming it was otherwise charged for at full cost) is the main form of financial aid to children in many countries, and is highly equalising like all per capita systems of family support. For this reason I do not think that if state educational finance were abolished the distribution of lifetime incomes (of parents and children, measured from birth to death) would be more equal than it is now.

However, fortunately such questions are totally irrelevant to the evaluation of lesser policy changes than the total withdrawal of the state. Specific policy changes should be judged by measuring the change in net benefit (in present value terms) that would accrue to each member of the society. We would then compare the vectors of present values with and without the policy change. These could be evaluated purely in terms of their inequality, or, which is preferable, in terms both of inequality and total output. The Atkinson measure of inequality is the most suitable for this purpose, since it embodies a specific trade off between inequality and total output (1). I have used an approach along these lines for the U.K. and found indications that a lower subsidy to universities would be both equalising and efficient, whereas higher subsidies to post-compulsory schooling, though slightly disequalising, would be efficient enough to outweigh this. Similarly greater expenditures on universal education would be equalising, but their efficiency effects are particularly difficult to guess. Since a similar analysis for Germany would also show that decreased higher education subsidies would be equalising, I strongly support the authors' conclusions.

A suitable system might be to replace some of the existing subsidy by an income contingent loan - or in effect a graduate tax. Since there is some confusion about the arguments here, I shall attempt to clarify them. Suppose there are two people who under present arrangements have identical income streams. A does not go to university, while B does, where he receives a grant exactly equal to A's wage. After B leaves university he earns the same as A. If we want greater equality why should we move to a system where B pays a higher tax than A after university, rather than increasing the general progressivity of the tax system? It cannot be for equity reasons since both A and B have identical income streams. The reason is of course efficiency. If university students are given grants higher than the present value of any external benefits of their education, too many people will receive higher education, unless there is an offsetting tax (or a rationing of university places as in the U.S.S.R.

So we have the following result. A graduate tax would be equalising but so would an increased progressivity of the general tax system. Many educationists would prefer the latter. But the former is the more efficient way of achieving a given increase in equality, and is also desirable whatever the level of equality.

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(1) For an approach along these lines see R. Layard, "On Measuring the Redistribution of Life-Time Income", paper delivered to the International Economics Association Conference on Economics of Public Services, Turin, April 1974 (Conference volume to be published by Macmillan, edited by M. Feldstein).

The use of education as an equalising devise

This brings me to some more general reflections emerging from the controversy sparked off by Jencks. Jencks did not, despite what the authors' say, question the view that higher education leads to higher income, though he assessed the effect at 60 per cent of that obtained if the effect of family background and ability are not controlled for. His main argument was that a large amount of the variance of individual income remains unexplained. Thus there are plenty of people who, though disadvantaged in terms of measurable attributes, like background, ability and education, will end up quite rich, and many others who, though advantaged, will end up poor. Thus attempts to help the measurably disadvantaged by education, though equalising, will not be very equalising and may well not be very efficient. The way to help the poor is to transfer income to the poor when we know who the poor are - rather than to guess who are going to be poor, and, in helping this group, help a lot of non-poor at the expense of, amongst others, some who are poor.

The Jencks' analysis has been criticised by many who point, for example, to the much greater explanatory power of the regression equations developed by Professor Mincer, which explain a half or more of the variance of the log of earnings among working males of all ages. However these criticisms are not altogether to the point. For the basic problem is the problem of inequality of lifetime income (1). If one uses Mincer's regression to compute the predicted life income for the different members of his sample, discounting this at the internal rate of return to human capital, we should find that the predicted life incomes were approximately identical for all members of the sample (apart from the fact that the younger members come from richer cohorts due to economic growth). Thus the inequality which worries policy makers is measured by Mincer's unexplained residual, which, though much smaller than the overall variance, is still substantial (2). I might add that in computing the lifetime incomes of a U.K. sample I have found that, even at quite low discount rates, the average for the least-educated group is very little below that for the most-educated and the variation within education groups is substantial (1). So Jencks' policy point seems to me to stand. So long as people are inside the regular educational system we know little about their future earning power, and thus we cannot easily use the regular educational system to modify the distribution of earnings. But once people have worked for a few years we know a lot more. Thus the case for using recurrent education and retraining to alter inequality is altogether more powerful. Even if it is cheaper to raise a man's income by a transfer than by retraining, this is not necessarily the most efficient way if he values £1 he earns more than £1 he is given by the state.

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(1) This is, I presume, why Jencks correlated education and income holding age constant. However the reasoning here is not altogether clear, since, if the concern is with life income, one should also allow for the variation of working life with schooling and for the need to discount. If one is not concerned with life income, it would be better to hold experience than age constant, as Mincer has shown. It is in either case important to control for hours worked, which Jencks does not.

(2) It would be less if we extracted the influence of transitory elements affecting annual, but not lifetime, income variance.

Two parting points

Finally I shall add two comments on the last two sections of the paper. The analysis presented here is interesting but could be more conveniently presented in terms of the traditional rate of return approach. In part 4 the progressivity of the tax system is assessed after education transfers have been deducted. The idea is to see whether, if we assumed people paid for their own education, the rest of the public tax:transfer system is progressive. But this cannot be examined until we know what the other taxes are being spent on. And, even if taxes could be usefully looked at on their own, they would normally be called progressive only if they rose *more than proportionately* with income. However I found the paper informative, stimulating and, above all, right in its policy recommendations.

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(1) *Op. cit.*

Income Inequality and Economic Development
A Case Study: Japan*

by

Tsunehiko Watanabe

1. Introduction

In 1955, Kuznets examined the relationship between income inequality and economic growth and derived the following hypothesis. He assumed that a long swing in inequality characterized the secular income structure; widening in the early phases of economic growth, becoming stabilized for a while, and narrowing in the later phases /3/. Ono and Watanabe state in their paper /7/ that the following findings which are generally compatible with the Kuznets hypothesis have been observed in prewar and postwar Japan, though there have been significant shortcomings in the availability of statistical information. For this reason income inequalities during the prewar period are estimations. By using the coefficient of variation with a breakdown of the national economy into rural and urban, or agricultural and non-agricultural sectors as an approximate alternative, income inequality could be decomposed into three factors; the rural-urban per capita real income differential, the proportion of urban population, and income inequality between rural and urban sectors (1). With regard to these three factors, the following findings emerge for prewar Japan: i) the differential of per capita real income between rural and urban areas was almost stable up to 1915, and then increased sharply, ii) the effect of urbanization upon income inequality was not significant, and iii) certain data compiled for agricultural and non-agricultural sectors suggested that income inequality in the agricultural sector had decreased, and in the non-agricultural sector had increased, after about 1920.

On the assumption that the effects of changes in income inequality within the urban and rural sectors are cancelled out in the economy as a whole, our conjecture would be that it was the changes in the rural-urban income differential which caused the changes in income distribution in prewar Japan (2). On the other hand, unlike per capita real incomes, there were large differentials in per capita nominal incomes between farm households, and urban employee households in the Meiji era. This was due to wide differences in consumer prices between rural and urban areas (1). By extending our observations along the same lines into postwar Japan, i.e. using the coefficient of variation, we may make the following general and historical assumptions.

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* The author would like to express his thanks for the research assistance provided by Mr. S. Matsukawa.

(1) Detailed discussions about this property of the coefficient of variation are found in Swamy /8/.

(2) This was to a considerable extent confirmed by the changes in Pareto coefficients calculated from income tax data.

i) income inequality in Japan increased in the 1920's, was less marked in the early postwar period than in the prewar period, and started to decrease about 1960, and
ii) this finding is, on the whole, compatible with Kuznets' hypothesis.

Needless to say, discussions of income inequality in prewar Japan must be viewed as very tentative, mostly because of limitations in statistical information. On the other hand, statistical information in postwar Japan has been relatively abundant, except for information on assets and their related incomes (2). Some detailed discussion of income inequality in postwar Japan is therefore possible. In the present paper, the changes in income inequality during the postwar period will be investigated quantitatively and extensively in order to shed some light on the relationship between income inequality and the rapid economic development in Japan. It may also provide some additional findings for the Kuznets hypothesis.

2. Summary Pictures of Income Inequality

Japan's postwar growth has very often been quoted as a prime example of rapid economic growth and there has been much discussion as to the causes of this rapid growth. Discussions on costs and outcomes of Japan's rapid growth, however, have been somewhat inadequate so far (3). Among those costs and outcomes, the changes in income inequality should be investigated as an important issue, though the relationship between income inequality and rapid economic development has not been clearly formulated in economic theories. Furthermore, empirical or quantitative findings on income inequality, which would provide an important basis for theoretical discussions, have not been satisfactory. The present section attempts to provide some summary pictures of income inequality in present Japanese society in order to bring out the important aspects or issues to be examined in the following sections.

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(1) Regional differences in consumer prices may lead to an overestimation of income inequality in the early stage of economic development, if measured only in terms of a nominal concept of incomes.

(2) For example, distribution effects of capital gains, especially during the recent inflationary period, could not be examined in detail because of data limitations.

(3) Discussions of environmental troubles in Japan's society, which have become one of the important policy issues in the 1970's, could be an exception, but positive researches on these troubles in the field of economics are, as yet, inadequate.

From the point of view of income inequality in Japan, two major problems have been listed in the policy programmes of the early 1960's. The wage differentials among enterprises of different sizes and income differentials between farm and city households were main policy issues. Since the most important emphasis in the policy programmes of rapid economic growth during the 1950's and the 1960's had been placed on rapid industrialization, which was centred around heavy manufacturing industries such as steel, petrochemicals etc., income maintenance in residual sectors such as agriculture and small indigenous industries had to be taken as an important policy issue. Otherwise, social or structural imbalances might have appeared and created serious confusion, which would, in turn, have distorted the programme of rapid industrialization.

Given this situation, income maintenance in farm households was undertaken mostly through price adjustments or protective measures for certain agricultural commodities, though it is also important to mention the significant contribution made by productivity increases in the agricultural sector (1). Typical price adjustments or protective measures may be illustrated by the rice market. Domestically produced rice is generally bought by the government at the producer's price, and sold to the consumer at the consumer's price; the producer's price being considerably higher than the consumer's (2). Under this practice of dual pricing, the producer's price is determined in such a way as to maintain wage increases similar to those in the industrial sector. For example, the producer's price of rice rose about 40% in 1974, while the wage increase was about 30%.

Even though this price adjustment may not be viewed as the only source of income growth in the agricultural sector (3), income per farm household has been maintained at a higher level than that of city wage earners since 1965. For example, in 1973 the former was about 30% higher than the latter. In addition to this, per capital income in the agricultural sector has been higher than that of city wage earners since 1972. Since the family size of farm households is generally larger than that of city wage earners, this income equalization may well be a great improvement. The following table indicates the process of this improvement.

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(1) See, for example, Haymi and Ruttan /2/ with respect to the latter point.

(2) Corresponding to the rate of wage increases in the spring wage negotiation, producer's price of rice in 1974 was determined at 13,615 yen per 60 kilogram. On the other hand, considering possible increases in the government fiscal outlays within the supplementary budget, the consumer price was maintained at 10,256 yen per 60 kilogram. Approximately, there is a 33% difference between the two prices, which represents a sizable deficit in the government budget.

(3) Income maintenance through supplementary work or part-time work in farm households, for example, has played a significant role in their income growth.

Table 1. Income of Farmers and Wage Earners

	Wage Earners		Farmers	
	Per Household	Per Capita	Per Household	Per Capita
1963	655	157	642(98)	118(75)
1964	732	176	732(100)	137(78)
1965	793	194	835(105)	159(82)
1966	897	215	948(109)	183(85)
1967	967	241	1,135(117)	223(93)
1968	1,068	272	1,248(117)	250(92)
1969	1,202	309	1,399(116)	287(93)
1970	1,391	358	1,592(115)	332(93)
1971	1,521	392	1,776(117)	375(96)
1972	1,713	446	2,146(125)	460(103)
1973	2,048	532	2,652(130)	574(108)

Sources: Family Budget Survey, Bureau of Statistics, and Agricultural Family Budget Survey, Ministry of Agriculture **respectively**. The unit is yearly income (fiscal year) in thousands of yen and the figures in brackets represent the percentage differentials for wage earners in the corresponding items. The figures for 1973 are preliminary estimates.

As can be seen from the above table, if an egalitarian society from the macro-point of view at least is one of the ultimate aims of the policy programmes, the income differentials between farmers and wage earners are now well-balanced. The relationship between the disappearance of the income differentials and some of the more sizable effects of price adjustments for rice in the present period of inflation may however be another aspect which will have to be taken seriously; it may mean that the disappearance of the income differentials between farmers and wage earners can be considered as only temporary.

Another important policy issue in the early 1960's i.e. wage differentials among different sized enterprises, has also been dealt with fairly successfully. The so-called "dual wage structure" was one of the most important characteristics of postwar economic growth in Japan. Some economists even concluded that the appearance and the existence of the dual wage structure in Japan's economy should be understood as a structural characteristic of the Japanese type of "capitalism", although the transitional aspects of dual wage structure had been examined by several economists including the present author (1)(2). Statistical evidence of the dual wage structure during the last decade has certainly revealed its transitional nature, and this will be examined systematically in the later sections. The following table offers a summary of the evidence.

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(1) With regard to the dual wage structure, the most extensive and empirically well-founded discussions are summarized in Yasuba's paper /14/.

(2) See Watanabe /9/.

Table 2. Wage differentials by age, size of enterprises, and educational background

	Education	Number of Employees			Age
		10-99	100-999	1000 and over	
1958	Lower Secondary	76	88	100	25-29
1964		102	100	100	
1972		93	94	100	〃
1958	Upper Secondary	78	89	100	
1964		105	101	100	〃
1972		91	92	100	
1958	University	82	86	100	
1964		99	109	100	〃
1972		95	91	100	
1958	Lower Secondary	57	76	100	40-49
1964		67	77	100	
1972		72	84	100	
1958	Upper Secondary	66	82	100	
1964		78	83	100	〃
1972		77	87	100	
1958	University	51	75	100	
1964		68	82	100	〃
1972		73	85	100	

Sources: Survey of Wage Structure, Ministry of Labour. The wage earnings (including regular, overtime and bonus) in the biggest size of firm, III (with more than a thousand employees) are taken as 100 and relative ratios to this 100 are shown according to the size of firms. Lower and upper secondary school graduates are blue-collar, while university graduates are white collar workers.

As can be seen from this summary, the wage differentials by size of enterprise have been significantly improved over the period 1958 - 1972, and the improvement is particularly striking among younger workers. It may also be true to say, that the achievement of a full-employment economy, which appeared at sometime in the middle 1960's, in association with the rapid economic growth, may have contributed to this narrowing of wage differentials (1).

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(1) For example, Minami [5] has indicated that there was a turning point from surplus labour to labour shortage in the middle of the 1960's.

As a result of improvements in income differentials between agricultural and non-agricultural sectors, and also in wage differentials, the income distribution per household among wage earners has become more equitable over the last decade and the same improvement can be seen in per capita income, as is shown in the following table.

Table 3. Gini coefficients during the last decade

Year	Earnings per household	Wage & salaries per capita
1963	0.227	0.359
1964	0.217	0.356
1965	0.209	0.344
1966	0.215	0.338
1967	0.218	0.330
1968	0.204	0.332
1969	0.189	0.320
1970	0.188	0.317
1971	0.188	0.315
1972	0.189	0.313
1973	0.190	Not available

Sources: Family Budget Survey, Bureau of Statistics, and Wage and Salaries in Private Sectors, Tax Agency, Ministry of Finance.

These improvements in Japan's income distribution may also be illustrated by a brief international comparison. Gini coefficients calculated for U.S., U.K., France and Japan indicate the pattern of income equalization in Japan, though the coefficients may not be fully comparable.

Table 4. Gini coefficients among countries

Country	Year	Gini coeff.	
France	1969	0.318	
Japan	1970	0.190	(Before Tax)
U.K.	1969-70	0.322	(Before Tax)
U.S.	1870	0.343	

Sources: Annuaire Statistique de la France, 1973, Family Budget Survey, 1971 Social Trends, 1973 and Statistical Abstract of the USA, 1972 respectively.

In short, aggregate measures of income inequality examined in the present section indicate significant improvements over the last decade. Needless to say, it may not be correct to conclude that income inequality in Japan has become a less important policy issue or that the rapid economic growth during the last decade has brought a desirable outcome from the point of view of income distribution. For example, recent higher inflation and its impact on income inequality, especially with regards to distribution of asset-related incomes, have to be examined carefully before coming to any conclusion.

3. Distribution of Wage Earnings: Institutional Aspects

Income distribution originating from labour services was to some extent equalized in Japan after the middle of 1960's, at least in the average concept. On the other hand, income inequality, especially wage differentials among enterprises, was one of the most important economic and social issues during the 1950's. For example, Lydall [15] showed that according to the statistical data of 1955, employment income inequality in Japan was exceptionally large as compared with other advanced countries (1). In this respect, the summary discussions in the previous sections indicated that improvements in the employment income inequality might have been associated with changes in labour market. The question as to whether changes in the labour market can be seen as a single cause of the employment income equalization or not may have to be examined more carefully, since changes in the institutional organisation of the Japanese wage system may also have played a significant role, or massive extension of higher education may have been an important factor, etc. In the present and the following sections, the effects of some important factors which may have determined the employment income structure will be investigated. In the present section, the effects of changes in the institutional organisation will be discussed in particular.

As has often been said, an important difference between wage determination in Japan and that in other countries is that of the "life-time commitment" system. One of the important characteristics of this life-time commitment is the use of seniority rule in wage determination. For example, wage earnings for workers were adjusted by age and hence younger workers would generally receive smaller wages and salaries than older people. This seniority rule in wage determination was extensively established in the 1930's and was carried over into postwar Japan. For example, in 1958, the wage of workers younger than seventeen (lower secondary school graduate, production worker, manufacturing industry) was about 30% of the wages of workers aged between thirty and thirty-four years old.

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(1) More specifically, Lydall stated that Japan and France were two exceptional countries, which showed the largest differentials in employment incomes.

This is shown in Table A-1. Also, wages increased from 34 to 122 according to the age of workers (forty-forty nine years old). This type of seniority rule, however, is likely to be disturbed by demand and supply conditions in the labour market. Under the life-time commitment system, changes in demand and supply conditions in the labour market would tend to appear first among new participants in the labour force, in other words among younger workers. Changes in demand and supply conditions in the labour market would also be affected by the development of higher education, for example, the sharp increase in the number of university students experienced during the last twenty years would result in a decrease in the supply of secondary school graduates. Hence, in order to secure a sufficient number of younger workers, their wages would have to be increased in some enterprises or industries and wage increases would eventually become a general tendency for all industries or enterprises. This mechanism of wage adjustments may distort the seniority rule in the long-run, as is shown in Table A 1 - 5. If the seniority rule were to be eliminated from the wage structure, the wage differentials in terms of the average wage might become equalized. This may not necessarily correspond to a reduction of income inequality.

In order to reduce employment income inequality, therefore, some adjustments which would take account of the effect of the decline of seniority rule may have to be made. For this purpose, the calculation of a measure of income inequality classified by age group would be required. The following table shows the changes of Gini coefficients classified by age group.

Table 5. Gini coefficients by the age group

(Male workers, Manufacturing industries)

	All workers	20-24	30-34	40-49	50-59	60 & over
1961	0.307	0.177	0.209	0.253	0.297	0.297
1970	0.225	0.137	0.146	0.203	0.244	0.228
1972	0.209	0.126	0.136	0.200	0.243	0.222

Sources: Survey of Wage Structure, Ministry of Labour.

Although the above comparisons of Gini coefficients by age group may not be completely satisfactory (1), in every age group Gini coefficients have decreased. This uniform decline of Gini coefficients may indicate that employment income inequality has been reduced with even a possibility of the seniority rule disappearing. The next question is: "Are there any factors to explain the narrowing of employment income inequality other than the narrowing of wage differentials among different age groups?"

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(1) For example, due to the availability of data, Gini coefficients from 1962 to 1969 were not calculated, and continuous groupings of ages were not possible. Other type of measures of income inequality, e.g. coefficients of variations gave similar results.

4. The Impact of Education on Employment Income Inequality

The development of higher education has been significant in postwar Japan. For example, in 1958 about 5% of male workers in manufacturing industries were university graduates, while in 1972 this percentage was about 10%. Table 6 provides a detailed picture of the educational background of male workers in manufacturing industries.

Table 6. Educational background of workers

(Male, Manufacturing industries)

All Workers	1958	1961	1964	1967	1970	1972
I	66.9	64.4	62.6	51.9	46.8	43.6
II	13.6	15.9	15.9	17.3	21.1	22.6
III	4.6	3.9	3.9	9.7	7.9	7.9
IV	10.0	10.5	11.7	14.1	15.3	16.1
V	4.9	5.4	5.9	7.0	8.9	9.9
25-29 years old						
I	59.8	55.0	49.6	41.1	37.4	34.4
II	17.1	19.5	22.0	22.8	24.2	25.5
III	2.3	2.2	2.4	5.5	4.3	4.2
IV	10.6	11.4	13.9	17.3	19.2	19.8
V	10.2	11.9	12.1	13.3	14.9	16.2
30-34 years old						
I	66.0	62.8	58.1	47.3	40.0	36.8
II	11.2	14.4	15.9	17.5	20.8	21.9
III	4.4	3.4	3.3	7.4	6.3	6.2
IV	12.2	11.5	12.1	15.4	19.2	20.2
V	6.2	8.0	10.6	12.4	13.6	14.9
40-49 years old						
I	70.7	70.5	69.5	59.1	55.4	53.9
II	5.6	6.7	7.7	7.5	9.2	10.1
III	9.1	8.1	7.9	17.2	15.2	14.8
IV	10.6	10.4	10.6	12.0	13.4	14.0
V	4.0	4.2	4.3	4.3	6.8	7.3

Sources: Survey of Wage Structure, Ministry of Labour, I, II, III, IV and V represent lower secondary graduates (production workers) upper secondary graduates (production workers) lower secondary graduates (office workers and engineers) upper secondary graduates (office workers and engineers) and university graduates (office workers and engineers) respectively.

The relationship between the development of higher education and the changes in employment income differentials can be seen in the following table.

Table 7. Wage differentials by educational backgrounds
(Male workers, manufacturing industries)

25-29 years old	1958	1961	1964	1967	1970	1972
I	86	85	88	93	95	94
II	89	87	90	95	97	97
III	89	91	94	94	99	98
IV	96	93	95	95	98	99
V	100	100	100	100	100	100
35-39 years old						
I	61	63	63	69	70	69
II	63	65	67	75	74	74
III	71	74	74	75	80	80
IV	80	80	79	84	85	85
V	100	100	100	100	100	100
40-49 years old						
I	49	52	53	57	58	58
II	48	50	55	60	60	61
III	61	64	67	66	71	72
IV	67	71	74	76	75	77
V	100	100	100	100	100	100
50-59 years old						
I	n.a	47	46	46	48	47
II	n.a	45	47	46	48	47
III	n.a	63	64	55	62	63
IV	n.a	68	69	64	67	70
V	n.a.	100	100	100	100	100
60 & over years old						
I	n.a.	48	50	61	56	57
II	n.a.	51	53	67	57	59
III	n.a.	72	74	65	67	70
IV	n.a.	78	81	84	73	81
V	n.a.	100	100	100	100	100
All workers						
I	62	65	67	73	73	74
II	56	59	66	70	69	70
III	94	96	94	90	95	96
IV	81	80	80	83	84	86
V	100	100	100	100	100	100

Sources: Same as the sources in Table 6. n.a.: "not available".

There is no firm evidence for older workers, that is 50-59 years old and 60 and over, but the wage differentials by educational backgrounds becomes considerably narrower among other age groups. This is especially significant among younger workers. More detailed discussion of this follows.

The wage differentials by educational backgrounds should first of all be looked at in the light of "life-time income" since graduates of higher education have to forego some earnings. Given the sharp increase of wages among young workers, the amount of earnings foregone may become considerable (1). The estimation of life-time income made below, may, however, have some limitations, since our estimates are based on the following assumptions: (i) Lower secondary graduates start to earn at fifteen years old, upper secondary and university graduates at eighteen and twenty two years old respectively; (ii) Workers usually retire at fifty five years old, but earnings include those of workers from fifty to fifty nine years old, since this reflects the data available. The estimate may therefore be an underestimation, since the group of workers 50 to 59 years old include those re-employed after retirement. (Earnings in re-employment after retirement are usually lower than those before retirement.) (iii) Earnings do not include bonuses, retirement bonuses or other special payments, which may tend to reduce income inequality. (iv) Cohorts (2) are not used here; cross-section estimates are made. Given these assumptions, differentials of life-time employment earnings are summarized in the following table.

Table 8. Life-time earnings by educational backgrounds
(Male workers, manufacturing industries)

	1961	1964	1967	1970	1972
Thousand yen					
I	13,199	16,234	20,778	32,049	39,266
II	12,819	16,534	20,473	30,887	38,327
III	14,630	17,939	22,622	35,611	43,790
IV	15,083	18,590	22,996	34,420	42,684
V	18,086	21,557	26,173	38,844	47,672
Relative Percentage					
I	73	75	79	83	82
II	71	77	78	80	80
III	81	83	86	92	92
IV	83	86	88	89	90
V	100	100	100	100	100

Sources: See Table 6.

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(1) Estimates of earnings foregone in postwar Japan are given in Watanabe and Matsukawa [12].

(2) See Miller [4].

As can be seen from the above summary, income inequality has been reduced even in terms of life-time earnings. On the other hand, an unusual growth in the demand for highly educated and specialized managerial, scientific and technical personnel, needed to keep pace with Japan's rapid industrialization, was observed during the 1960's. And if this was one of the reasons for the rapid development of higher education, the reduction of income inequality may lead us to a somewhat ironical conclusion: university graduates or relatively well-trained workers have been underpaid (1) or have not been able to find suitable employment (2). According to the estimates of Gini coefficients classified by age and education, employment income inequality within the same educational background has been to some extent reduced, as is shown in the following table.

Table 9. Gini coefficients by age and education
(Male workers, manufacturing industries)

	Lower secondary graduates	University graduates
20-24 years old		
1961	0.1883	0.1320
1970	0.1465	0.1183
1972	0.1360	0.1018
30-34 years old		
1961	0.1666	0.1718
1970	0.1480	0.1350
1972	0.1379	0.1287
40-49 years old		
1961	0.2463	0.2134
1970	0.1840	0.1783
1972	0.1729	0.1617
50-59 years old		
1961	0.2789	0.2812
1970	0.2218	0.2410
1972	0.2126	0.2248

Sources: Survey of Wage Structure, Ministry of Labour.

As was discussed in the previous section, the employment income or the wage differentials by size of enterprises were significant in early postwar Japan. The changes in the wage differentials classified by age, education and size of enterprises, are summarized in the following tables.

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(1) In this respect, studies on improvements of labour quality in the postwar Japan has also provided the same conjecture. See Watanabe [11].

(2) In recent years, it has been revealed that some university graduates have become blue-collar workers instead of white-collar workers.

Table 10. Wage differentials by education and scale of enterprises (Male workers, manufacturing industries, 25-29 years old)

	Number of employees	1961	1964	1967	1970	1972
I	less than 100	85	106	103	96	97
	100-999	97	103	102	96	98
	1000 and over	100	100	100	100	100
II	less than 100	91	107	104	95	94
	100-999	96	101	99	93	93
	1000 and over	100	100	100	100	100
III	less than 100	98	118	107	100	103
	100-999	104	117	110	103	103
	1000 and over	100	100	100	100	100
IV	less than 100	95	117	112	98	100
	100-999	96	110	105	96	97
	1000 and over	100	100	100	100	100
V	less than 100	95	113	108	93	101
	100-999	93	101	95	90	93
	1000 and over	100	100	100	100	100

Table 11. Wage differentials by education and scale of enterprises (Male workers, manufacturing industries, 40-49 years old)

	Number of employees	1958	1961	1964	1967	1970	1972
I	less than 100		52	63	77	73	70
	100-999		74	80	85	81	88
	1000 and over		100	100	100	100	100
II	less than 100		62	89	95	79	81
	100-999		85	84	86	90	99
	1000 and over		100	100	100	100	100
III	less than 100		69	69	77	77	79
	100-999		86	77	89	89	88
	1000 and over		100	100	100	100	100
IV	less than 100		77	81	86	89	89
	100-999		89	89	88	91	101
	1000 and over		100	100	100	100	100
V	less than 100		67	76	97	89	84
	100-999		84	81	92	88	89
	1000 and over		100	100	100	100	100

Sources: I, II, III, IV and V, see Table 6.

According to the findings observed so far, it may be tentatively supposed that the employment income inequality which was relatively larger in the 1950's has narrowed considerably in recent years. Specifically, the employment income differentials have become narrower as far as different age groups, educational backgrounds and size of enterprises are concerned. Furthermore, employment income differentials for the same educational background have also narrowed. It would be interesting to discuss further the narrowing of the employment income inequality with respect to educational backgrounds.

5. Educational Aspects

As a summary presentation of the employment income differentials, the following regression estimates derived by A. Nakamura [6] are useful (1).

Table 12. Regression estimates on the employment income differentials

(1972, Manufacturing industries)

	a_0	a_1	a_2	a_3	a_4	a_5	R^2
Male, Lower Secondary	32,232	3,620 (34.2)	-35.6 (10.5)	2,912 (23.6)	-65.2 (10.7)	-84.4 (13.4)	0.99
Male, Upper Secondary	40,992	3,310 (18.2)	1.4 (0.2)	2,505 (9.6)	-45.3 (3.0)	-50.4 (3.8)	0.99
Male, University	49,300	4,910 (10.8)	33.0 (1.8)	2,250 (3.6)	75.2 (1.6)	16.6 (0.5)	0.99
Female, Lower Secondary	34,339	1,613 (11.1)	-11.0 (2.4)	148 (0.9)	-15.4 (1.8)	-30.5 (3.5)	0.98
Female, Upper Secondary	41,058	1,353 (9.7)	14.5 (3.2)	118 (0.6)	-31.3 (2.7)	10.8 (1.1)	0.99

Sources: Survey of Wage Structure, Ministry of Labour, 1973.
The figures within the brackets give t- values.
Unit is yen per month.

The regression equations estimated in the above are:

$$w_i = a_0 + a_1 D_i + a_2 D_i^2 + a_3 (A_i - D_i) + a_4 (A_i - D_i)^2 + a_5 (A_i - D_i) D_i$$

where A_i = Actual age - graduation age, e.g. the value of A_i for lower secondary graduates of 35 years old is 20 = 35 - 15, D_i = years of continuous employment in the same firm, and i gives the educational backgrounds listed in the left hand column of the table. According to the above estimates, the actual wage, for the average lower secondary graduate for example can be determined by six components; i) the initial wage represented by the constant term (32,232 yen), ii) years of employment represented by a_1, (iii) its non-linear effect given by the estimates of a_2, iv) the age adjusted by the educational background given by the estimates of a_3, v) and its non-linear effect, a_4, and vi) the interaction effect between years employed and the adjusted age. Specifically, the signs of a_1, and a_3 should be positive, since wage determination in Japan has generally maintained the seniority rule characterized by the years of continuous employment and age. On the other hand, the sign of a_2, a_4, and a_5 would not be predetermined.

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(1) Nakamura gave the estimates and some brief comments, and the following interpretations are made by the present author.

According to Nakamura's estimates, there are two interesting observations to be made here: (i) The initial levels of wage earnings differ considerably among workers according to their educational backgrounds, and there may be a direct relationship with earnings **foregone**. For example, according to our estimates of earnings **foregone** (1), the ratio of earnings **foregone** between upper secondary graduates and university graduates was 1 to 1.24, while the estimated ratio for initial earnings was 1 to 1.20. (ii) A significant difference in the levels of wage earnings between male and female workers comes from the marginal considerations of the years of employment and also the adjusted age; for example, an addition of one year of employment would give approximately 3,500 yen per month for male workers, while it would be about 1,500 yen per month for female workers, and increases due to age show a similar difference. (iii) Educational backgrounds therefore generate significant differences in the long-run or in the life-time income. For example, male university graduates may enjoy ever-increasing wage adjustments (until approximately the age of retirement). This is shown by the positive coefficients of a_2 and a_4. Secondary school graduates on the other hand may have to face decreasing trends in their marginal (and non-linear) adjustments. (iv) Although employment income differentials with respect to educational backgrounds have narrowed over the last decade, especially among younger workers, there would still have been some differentials in the long-run even without the structure of wage earnings described above. For example, in 1972, the wage earnings differentials among differently educated workers were:

Table 13. Differentials of wage earnings by education

(Male, manufacturing industries)

Age	25-29	35-39	40-49	50-59	60 & over	All
Lower Secondary	98	82	68	60	68	88
Upper Secondary	101	88	74	69	80	81
University	100	100	100	100	100	100

Sources: Survey of Wage Structure, Ministry of Labour, 1973.

As can be seen from this table, there are almost no differences among workers of 25-29 years old, but there are some sizable differences among older workers.

This discussion suggests that employment income inequality due to differences in education does exist and will exist in

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(1) See Earnings Foregone in Japan's Education, by S. Matsukawa and T. Watanabe, (unpublished mimeograph), 1974.

Japan in the future to some extent, even though inequality has been reduced over the last decade. If the income inequality due to educational background cannot be fully eliminated, it is important to know the reasons for the remaining income inequalities. This problem has been extensively and intensively investigated by many people, but it is still quite a controversial research area. In what follows, we will therefore offer only one possible explanation, which is supported to a considerable extent by empirical evidence.

Employment income inequality due to different educational backgrounds may reflect the differing contributions to national economic development. In other words, since the quality of the labour force could be one of the most important sources of economic growth (1), those with better knowledge, skills, etc., might receive higher earnings on the assumption that these superior skills are proportional to the degree of education.

As the present author has stated in his study /11/, in postwar Japan, at least, there has been little improvement in the quality of the labour force or in its contribution to rapid economic growth. In other words, for postwar Japan it may not be justifiable to generalize the assumption that faster economic growth could be achieved by improving the quality of the labour force principally through education. On the other hand, experiences observed by Denison /1/ in advanced countries such as U.S.A. and Belgium have provided reasonable evidence to support the above assumption (2). It is certainly unreasonable to assume that faster economic growth could be achieved unless sufficient attention were given to the improvement of the quality of the labour force and hence of education. One explanation might be found in the excess of highly educated workers, especially in Japan. In other words, there has been an under-employment of qualified labourers. This may be supported by the fact that the wage differentials between university and high school graduates in Japan have been much smaller than in the United States, even though the difference in the rate of return to education between these two groups of graduates is very similar to that of the United States (3). These observations may be compatible with our findings in the previous sections, i.e. the narrowing of the employment income inequality due to differences in education, and also the future changes in inequality would depend upon the size of excess supplies of highly educated labourers (1). In other words, the role of highly educated workers in the Japanese pattern of rapid economic development may have been relatively insignificant.

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(1) See, for example, Denison /1/.

(2) Among countries examined by Denison /1/, the case of West Germany gives evidence against, i.e. the Japanese type of evidence.

(3) Detailed empirical evidence is found in Watanabe /11/. But an important point has been found in the fact that even during the 1950's the wage differentials due to education had been smaller while the wage differentials due to other factors, e.g. size of enterprises had been significantly larger.

On the other hand, since it is hardly possible to determine what is the right number of highly educated labourers in a society and since educational activities require in general longer gestation periods, the safer policy would be to create an excess supply of highly educated labourers. In order to pursue this policy, as an important stimuli it may be necessary to maintain some considerable differences in the expected lifetime incomes as between university and secondary school graduates. Needless to say, the future path of Japan's economic development may become very much dependent on highly educated workers (2), and for this reason the employment income inequality caused by different educational backgrounds may again become larger.

6. Concluding Remarks

It may not be altogether incorrect to say that Japan's income distribution, particularly as between urban employees and farmers, has been to some extent improved during the 1960's. It may also be reasonable to say that these improvements in income inequality may well be transitional and may worsen again in the near future. For example, Gini coefficients applied to the last decade, as shown in Table 3, could be understood in two ways; they may be interpreted as evidence of the narrowing in the income inequalities, or there may be another interpretation based on the fact that there are almost no changes in the coefficients after 1969, i.e. improvements in the income inequalities may have reached saturation point or a turning point. Though the changes in the Gini coefficients of Table 3 do not

(1) Enrolment in higher educational institutions per 1,000 inhabitants among different major countries are as follows;

U.S.A.	25.9(1964)	34.7(1968)
U.S.S.R.	15.9(1964)	18.9(1968)
Japan	10.2(1964)	16.2(1969)
France	7.5(1964)	10.6(1967)
U.K.	4.4(1964)	6.2(1967)
Germany(F.R)	5.3(1964)	5.8(1967).

(2) For example, the Ministry of International Trade and Industry, Government of Japan has already announced that future industrialization in Japan should be based upon knowledge-intensive industries.

provide strong evidence for the latter conjecture, i.e. saturation point in improvements of the employment income inequality, the augmentation of the income concept, e.g. an inclusion of income from assets, would seem to support the conjecture.

As concluding remarks, some empirical observations on income inequality including assets-related income will be made and the above conjecture will be discussed. In this respect, the possible impacts of the present inflation in Japan's economy may have a great importance. A brief summary of present inflation will be made before going into detailed discussions of the problem of income inequality.

Even though the deep causes of the present two-figure inflation in Japan may have been rooted in economic performances during the 1960's, more direct and explicit causes should be looked for in recent events, particularly after 1970. For example, during the 1960's the rate of inflation in terms of the consumer price index was about 6% per annum, while the rate of increase in the wholesale price index (and also in the export price index) was maintained at around 1% - 2% per annum. Sudden changes in this pattern of inflation have been caused by the significant distortion of the international monetary market, (represented by the introduction of the NEP), subsequent mismanagement in Japan's national economic policies and the reversal of the declining or steady movements in world prices of raw materials and the recent oil crisis. For example, even before the oil crisis, i.e. September 1972, two-figure inflation around 15% per annum, had appeared in both the consumer and the wholesale price indices. The oil crisis has produced an approximately 30% annual increase in these price indices. Furthermore, under the present expectation, the present two-figure inflation is not likely to be stabilized at a single-figure level in the near future (1).

Much worse indicators with respect to the recent inflation can be found in rocketing land prices and construction costs (2). For example the land price index for urban districts exceeded 2,000 in 1972 compared with the base of 100 in 1955; more particularly land prices have more than doubled over the last five years (3). As a result of these rocketing land prices, incomes transfers, and transfers and other assets may generate significant distortions in income inequality, even though employment income inequality may have been maintained at a desirable level. These distortions in income distribution in a broader sense may have an important adverse effect on employment income inequality, since the size of the fringe benefits, in pecuniary and in kind, particularly firm-supported housing facilities, differ considerably according to the size of enterprises.

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(1) Possibly single figure inflation may not be achieved until sometime in 1976 or 1977. Detailed discussions with respect to this problem can be found in Watanabe [13].

(2) Construction costs have more than doubled within the last two years, i.e. 1973 and 1974.

(3) See the annual report of the Japan Real Estate Institute.

The following information may contribute to an understanding of the recent situation of income distribution in a broader sense.

Table 14. Income and assets among wage earners

	Average	I	II	III	IV	V
Annual Income (thousand yen)	1,788	901	1,287	1,614	2,006	3,133
Monetary Assets	97	80	80	88	93	114
Stocks	12	3	3	5	8	23
Others	85	77	77	83	85	91
Real Assets	587	328	389	617	590	727
Land	548	286	352	579	549	689
Housing	39	41	37	38	41	38
Debts	20	14	14	16	24	25

Sources: Figures other than annual incomes are percentage ratios to the corresponding annual incomes, e.g. stocks held by average wage earners is 12% of 1,788 thousand yen. Groups of I, II, III, IV, and V correspond to quantile distribution of incomes. Those estimates were compiled by Economic Planning Agency and reported in the Whitepaper on Living Standard, 1974.

This table suggests that there exists a significant inequality in assets-related income through the ownership of land, though no significant differences are found in other assets, e.g. monetary assets (1). In addition to this, yearly increases in the price of land and houses have for several years now been much higher than those of wages. For example, between 1972 and 1973, real wage earnings increased about 8% (20% nominal wage increase and 12% consumer price increase), while land and house prices increased about 31% and 26% respectively. Inequality due to ownership of assets has therefore become worse in terms of real price valuation, even though the nominal income inequality in terms of the flow concept may have improved.

Because of this sharp rising trend in asset prices during the 1960's and the 1970's, income from sources other than wage earnings, e.g. from assets, has increased significantly. For example, according to information provided by the Tax Agency, the number of tax payers grouped under "other incomes" was 645, 1,322 and 2,040 (ten of thousands) in 1960, 1965 and 1970 respectively, while that grouped as wage earners was 1,173, 1,694, and 2,480 (ten of thousands) for the same years respectively (2). These figures indicate a rapid expansion of the number of "other incomes", e.g. from 55% out of wage earners in 1960 to 82% in 1970, which may well correspond to a rapid expansion of "other incomes". Furthermore, among the sum of other incomes, incomes from transfers of assets have been expanded rapidly, e.g. 5.7% in 1965, 18.9% in 1969 and 30% in 1971 and 1972 (1).

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(1) This is particularly due to data coverage in that the data is limited to wage earners.

(2) A fraction of the number of tax payers in "other income" includes incomes from transfer of assets, dividend, rent, etc.

The above observations, combined with those in the previous sections, may lead to a tentative conclusion; employment income inequality in postwar Japan may have been improved to some extent because of Japan's rapid economic development, while the income inequality in a broader sense may have become worse, more especially because of recent inflation. Together with the findings for prewar Japan, briefly summarized in the section 1, we may be able to summarize the relationship between income distribution and economic development in the process of Japan's development as follows: i) in the early stage of economic development, roughly between 1870 and 1910, the income differentials between rural and urban areas, which had been the most crucial factor for promoting the modern economic growth especially from the point of view of social and political difficulties, was not widened in *real* income terms through the regional differences in prices (2). ii) Around 1920, the widening of the wage differentials was another important element of income distribution problems. In this respect, the wage differentials due to the size of enterprises or between indigenous and modern enterprises had been clearly observed (3). Mostly because of a war economy during the 1930's and the first half of the 1940's, social and political troubles which might have been generated from the widening of the wages differentials did not become real policy issues. iii) In postwar Japan, the income differentials between rural and urban areas, or agricultural and non-agricultural sectors have been nominally improved through heavy subsidies in agricultural prices, particularly that of rice. Needless to say, these heavy price subsidies in agricultural commodities may be an important cause of inflation. iv) On the other hand, the widening of the wage differentials due to the size of enterprises became an important policy issue during the 1950's. In this respect, however, no explicit policy measures were taken. In other words, it was thought that improvements of the wage differentials could be achieved possibly through the maintenance of a full-employment economy together with a rapid economic growth, assuming that the wage differentials due to the size of enterprises were transitional in nature. v) In fact, during the 1960's, there was a narrowing of the employment income differentials and also of the income differentials between agricultural and non-agricultural sectors. vi) The emergence of rising trends in consumer and wholesale prices has been clear since the end of the 1960's, particularly those increases which have appeared in real assets such as land, housing etc. Under these circumstances, a new element, which is the widening of assets-related income inequality, may not be overcome by further economic development. Some significant institutional changes such as changes in private ownership may be necessary (1).

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(1) Approximately 50% of "other incomes" originate from transfers of assets in 1973. And the average income differentials between wage earnings and other income was about 1 to 3 in 1973.

(2) Following economic development, regional price differentials were already disappearing and around 1910 the income differentials between rural and urban areas had become wider even in real income terms. This change certainly corresponded to social and political instability such as rice riots.

(3) See Watanabe [5], [10], and Yasuba [14].

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(1) For example, the Land Utilization Law, which was passed in 1974, aims to impose some constraints on the right of utilization and of transfer of land; in other words this Law has introduced some modifications in the private ownership of land, though it is still too early to state the effectiveness of this law in Japan's economy.

Appendix

Changes in the Wage Differentials by Age

(Male workers, manufacturing industries)

Table A-1. Lower secondary graduates, blue collar workers

Age	1958	1961	1964	1967	1970	1972
Younger than 17	31	34	40	40	42	44
18-19	44	48	55	53	55	57
20-24	60	63	71	71	71	72
25-29	81	81	88	88	89	89
30-34	100	100	100	100	100	100
35-39	113	114	111	109	105	105
40-49	122	125	120	118	112	109
50-59	102	111	110	112	105	102
60 & over		71	75	75	70	70
Average	84	85	88	90	91	93

Table A-2. Upper secondary graduates, blue collar workers

Age	1958	1961	1964	1967	1970	1972
Younger than 17	-	-	-	-	-	-
18-19	43	46	50	50	56	58
20-24	56	60	66	66	67	70
25-29	80	80	84	85	87	87
30-34	100	100	100	100	100	100
35-39	112	111	111	111	107	106
40-49	114	116	115	116	110	109
50-59	94	102	104	105	100	96
60 & over		72	75	77	68	68
Average	72	75	82	81	82	84

Table A-3. Lower secondary graduates, white collar workers

Age	1958	1961	1964	1967	1970	1972
Younger than 17	27	31	35	36	37	41
18-19	36	40	44	49	50	51
20-24	53	57	61	67	65	67
25-29	75	78	83	84	85	83
30-34	100	100	100	100	100	100
35-39	116	120	114	112	110	110
40-49	136	138	131	128	125	123
50-59	126	136	131	125	124	122
60 & over		96	97	76	77	77
Average	112	113	108	105	109	109

Table A-4. Upper secondary graduates, white collar workers

Age	1958	1961	1964	1967	1970	1972
Younger than 17	-	-	-	-	-	-
18-19	37	39	43	46	49	50
20-24	51	53	56	61	61	63
25-29	75	76	78	81	83	82
30-34	100	100	100	100	100	100
35-39	124	122	116	119	114	113
40-49	140	144	139	140	129	128
50-59	130	138	136	138	132	134
60 & over		98	102	92	82	87
Average	92	88	88	92	94	96

Table A-5. University graduates, white collar workers

Age	1958	1961	1964	1967	1970	1972
Younger than 17	-	-	-	-	-	-
18-19	-	-	-	-	-	-
20-24	49	53	57	58	57	60
25-29	66	71	74	75	75	76
30-34	100	100	100	100	100	100
35-39	129	133	131	125	120	121
40-49	175	178	166	163	154	152
50-59	149	176	175	192	175	173
60 & over		110	112	97	100	98
Average	94	97	97	98	100	101

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Comments on Watanabe, Pfaff and Fuchs

by

Peter Wiles

1. Theories of Educational Economics

Most of our contributors implicitly used a human capital theory of educational economics. I have been invited to comment as an opponent of this theory. I shall rehash the basic arguments as little as possible, and ask mainly, how would other doctrines affect our view of "education and life-chances"?

I am disappointingly non-violent on these issues, compared with certain others. I demand only a place in the sun for other theories, and an end to monopoly. I accept human capital theorists as better statisticians than me, who have correctly correlated earned income with education. My question is, nearly always, what does this correlation mean?

I agree with the human capitalists that Jencks' (1972) correlation is too low, because he has not standardized properly for age; and therefore reject Jencks' scepticism that education has much effect on income, or indeed anything. Specifically, his R^2 for education and income is 0.12($R = 0.353$, pp.357,330,328). He says it is lower for ages 25-34 and 55-64, but higher for 35-44 and 45-54 and his 0.12 is an apparently unweighted average of these four groups. It is not clear why he has omitted age 19-24, which may well yield a high R^2 because of the profitability of the high-school leaving certificate and the BA; and he has apparently not excluded the semi-disabled, the part-timers or even the unemployed, who are all heavily represented in age 55-64. But even apart from such health questions he has underestimated the "longitudinal" advantage to an educated man over 24 of getting older. For (a) education has grown rapidly in the U.S.A. recently, putting many more young men at the bottom of the escalator than old men at the top; (b) some young people die, and we don't count what they would have earned later, thus again overweighting the young for the purpose in hand. It is true (c) on the other hand that this longer educated cohort may become a drug on the market as it ages precisely because it is larger, but there is no sign of this yet (Okner and Rivlin). So Jencks has indeed a computationally valid R^2, but it is not a valid guide to a young man considering his monetary life-chances; and so not a valid policy guide to an egalitarian government either.

Putting aside Jencks, then, as a statistical error, we have the following hypotheses (slightly improving on my 1974a):

i) Human Capital, or the "content-hypothesis". All education is vocational and has useful subject matter. This knowledge is capital.

ii) External Test not Content (ETNC), also called "the sheepskin hypothesis", "credentialism" and "screenism"; the employer spontaneously hires graduates because otherwise he would have to pay for a test (which would be quite expensive: Wiles 1974a p.48).

iii) Character Formation not Content (CFNC): schooling develops docility and concentration, and this is why employers hire graduates.

iv) Exercise not Content (EXNC): the brain is like a muscle and must be developed somehow. Even writing Greek verses will do, and all such exercise is more efficient than juvenile labour.

v) Low Earnings Life Style (LELS). Some want degrees so that they can go into do-good or literary professions where the pickings are slim but the non-maximising life-style is attractive; moreover employers still demand a degree on grounds (i-iv). Note that this is by no means a "Not Content" hypothesis. Indeed it is only in such professions that a humanistic education could be called vocational (non-vocational courses are of course excluded by definition from Human Capital).

vi) Social Status not Content (SSNC): a degree is a social status symbol, and we want it (a) to impress our parents and friends, (b) to equip us for senior posts in very status-conscious hierarchies.

vii) Restrictive Practice not Content (RPNC). Often with the complicity of a public employer, a trade union imposes a bogus, or unnecessarily high, professional qualification, to whitewash a crude restriction of numbers.

viii) Consumption Good: we enjoy the student life-style and also the content of the courses, so we become students for present pleasure. This too, then, may be a "content" hypothesis.

(i-iv) are employer-dominated theories. (via) emphasizes education as a consumer good, and is student-dominated. (vib) is also student-dominated. (iii) and (v) are interesting cases, perhaps not hitherto emphasized enough.

CFNC first penetrated into economic literature with Gintis' path-breaking article (1971). There is nothing surprising in this work to a British "public" school boy, who has always known that "character counts", and has always used character, due to the culture as a whole rather than to schools in particular, as the explainer of Japanese success and British failure in the post-war growth stakes. Let me therefore say only what is wrong with Gintis. First, he is as much a monopolist as any human capital supporter. In particular he implicitly excludes ETNC, for a degree might just as well certify character as knowledge. Secondly he seems to think that there is something wrong with artificial character formation, as if work could be a natural activity under some social system unspecified, indeed as if stress on CFNC were a left-wing attack on capitalism. But how so if Communist countries practice CFNC fanatically while capitalist educational systems are an uproar of anti-regime, anti-work slogans, and young revolutionary teachers? To me, CFNC arises from a simple and sensible acceptance that work (and above all work free of Marxian alienation) is unnatural. To object to education on this principle is to object to Communism.

CFNC is of course much more political than any of the content theories. In Japan and the F.R.G. there is a strong revolutionary stream among teachers, forming a rival character; while orthodox teachers form several characters according to the child's probable status in society, a most conservative procedure. A purely cognitive education is certainly more liberal, but it would be absurd to suggest that the conservatively formed character(s) have no value in the market.

Along with SSNC and "Consumption Good", LELS destroys the link between earnings and education. If these three dominated, we should be in a Jencksian world. But since we are not in a Jencksian world they evidently do not dominate. SSNC at least leaves *homo economicus* intact. It simply transfers, in the (a) version, study to the consumption column, where in any case *de gustibus non disputandum*. LELS however raises basic questions of motivation. Are such students aiming at a leisurely life? Some do not, and the correct valuation of leisure would not restore them to "rationality". Their main motivations are pleasure in work and sheer self-sacrifice. They are quite common and affect our statistics. They explain why the yield on an MA is so low compared with BAs - school teachers get MAs (1).

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(1) School teachers, however, aim at leisure. For the dip in the yield curve at this point of, Taubman and Wales 1973 (Ph.D.s have a still lower yield); Ashenfelter and Mooney 1968 (Ph.D.s have a higher yield again). These effects are discussed by Layard and Psacharopoulos 1974, who as good human capitalists profess to find them "strange" (p.990). Equal puzzlement is expressed by Weiss 1971.

Those who feel uncomfortable with non-maximizers may console themselves with a parallel case; do we, in the Keynesian economics, earn as much as possible and then consume according to our given marginal propensity to consume? Or do we set a level of consumer wants and then go and earn an income according to our given marginal propensity to save? - a thing perfectly possible at micro- though less so at macro- level. Or are Y, C, S and L (Leisure) all determined in a single equilibration? If this kind of question is sophisticated but allowable, so is LELS, which merely applies it to education. Of course non-pecuniary benefits, other than perhaps leisure, must be excluded from Human Capital; for to count them in is to reduce the theory to an irrefutable and worthless tautology - we choose the education we like.

Now if we took up any of these non-human-capital theories, how would we feel about "education, inequality and life-chances"? The employer dominated hypotheses (i-iv) all equally associate income with education. It is of the highest interest and importance to establish their relative validity, but not here. According to each of them, more equal access to education brings more equal income.

Where LELS is valid equal money income is no longer a sign of equal access to education. But education is still a passport to a chosen life-style, and equal access remains just as important.

We would presumably not wish to supply education demanded under SSNC (in both kinds) and RPNC, or at least not out of public money. For both of them enhance a man's income without enhancing his productivity, and strengthen various other social tendencies that are quite undesirable. It would be very difficult to indeed identify education demanded on these grounds. It is slightly easier to correct the bad human habits that give rise to the demand.

2. Access to Higher Education in the F.R.G.

There is a pessimism about Pfaff and Fuchs section II which I cannot share, contemplating the figures provided. There has been an enormous improvement in the university share of blue-collar parents, as the authors themselves show in their all-important exhibit 12: in 1966 each 1% of blue-collar parents supplied 0.126% of the nation's freshmen: but in 1971/2 it supplied 0.240%. Or in the fruitful concept of our Secretariat, the "range of chances" of access to university between some first and some fifth class, however defined, fell from 27:1 to 10:1 (the Secretariat has 41:1 in 1961 and 15:1 in 1970). Progress of this striking order should be celebrated not depreciated. It is absolutely not enough to "conclude from the analysis of the higher educational system that the participation in higher education is very strongly dependent on the social position of the parents", without a word about the trend.

This great improvement at university level entails a prior improvement at secondary school level. It is again impossible to reconcile the pessimistic prose of pp.52,55 and 56 with the figures for the trend on pp. 53-54. These concern entry into the Gymnasium at 10-11, and tell us that a 20 fold "range of chances" in 1962/3 (48.0 ÷ 2.4)(last column p.53) has been reduced to 11 fold in 1969/70 (p.54). Eleven times, and fifteen times for university, are certainly great ranges and extremely remote from justice or efficiency, but progress has been very striking.

One further observation on these very interesting data. It is no doubt possible to expand higher education without either lowering quality or admitting the poor - it embraced only 9% of people aged 20 in 1969/70. But when we try to expand Gymnasium from 11% to 20% of the population discriminators run into diminishing returns. Perhaps the acid test of whether we are expanding for expansion's sake (emphasis mainly on efficiency) or for justice's sake (emphasis mainly on equality) is precisely that answered by the remarkable Bavarian table: does social pressure from top people overcome the diminishing returns to their children's brainpower? Are upper-class children with ever lower grades competing successfully for the expanded supply of places? The answer is yes. Accordingly while I altogether reject the authors' pessimism I accept their cynicism: the contraction in the "range of chances" is "not so much the result of a transformation of a social structure but rather the by-product of the expansion of education". But private vice is often public virtue: you cannot expand education indefinitely without equalising access, because there are three kinds of diminishing returns: (i) the genetical pool provided by rich children is limited; (ii) the education of such stupid children becomes too expensive; (iii) they themselves will refuse to go beyond the B.A. - no invention of further and higher courses for the preservation of their superiority is acceptable to the children themselves, the marginal disutility of education with respect to age becomes insuperable.

Incidentally the cynicism that the educational policy of the Federal Republic has doubtless earned must be qualified at least in British eyes. The single great necessary reform to enable poor children to get to a university is to give stipends to them between the end of compulsory schooling and the age of entrance. To my surprise I learned that this is absolutely normal in the F.R.G. (the Baföq stipends, mentioned by Pfaff and Fuchs). At almost half an unskilled starting wage these are very considerable. The U.K. is much less generous, yet the "range of chances" is much narrower. I wonder why? Possibly (i) because this less generous system is still fairly generous, and has gone on much longer, so establishing an altogether higher desire for education in poor families. The Baföq stipends only began in 1970, so probably "take-up" is still low. Or perhaps (ii) because money incomes are more evenly distributed in the U.K.

The Bavarian table suggests a simple analysis of the interaction of social bias, the social distribution of grades, the promotion percentage, and life chances. We can make interpolation a square (or indeed rectangular) matrix of promotions into Gymnasium by quintiles of the population, with grades and social status on the axes. Set out thus in quintiles it becomes internationally comparable. Access to the original data (here for 1969/70) would of course make interpolation vastly more accurate.

Grades

Social Status	A	B	C	D	E	
I	7.2	4.5	3.1	2.8	2.0	19.6
II	4.8	4.8	4.2	3.5	2.7	20.0
III	3.5	4.4	4.5	4.1	3.8	20.3
IV	2.6	3.7	4.3	4.5	5.2	20.3
V	1.8	2.7	3.8	5.0	6.7	20.0
	19.9	20.1	19.9	19.9	20.4	100.2

The line through the matrix is the "50%" line, students northwest of which have better than even chances of going on to Gymnasium. The dotted line is our guess as to what the situation used to be. Then:

(i) With 50% lines as drawn, and interpolating again, we obtain the following promotions according to the size of the gymnasium intake (%):

7.2	IA
17.75	IA, IIA, IIIA, half of IB
29.2	all A, IB, IIB

The range of chances in the situation 29.2% is 11.7 ÷ 1.8 = 6.5: 1.

(ii) But granted stipends for pocrer children, and parental will, we might be able to promote by grades alone. Then the "50% line" would be vertical, and we should need a finer subdivision of grades to trace the expansion of the Gymnasium intake. If the intake was 19.9% the range of chances would be 7.2 ÷ 1.8 = 4:1.

(iii) Justice and efficiency, however, tell us that children from poor families are brighter and more meritorious (though more expensive to teach) than those from rich families with the same grades. Then the expanding system should take:

7.9	VA, IVA, IIIA
22.6	all A, VB

Range of chances in situation "22.6%": 7.2 ÷ 4.5 = 1.6:1.

(iv) The social bias is represented by the cotangent of the angle of the 50% line: in (i) cotan bias = 2/4, in (ii) it = 0, in (iii) it = -2/5.

The range of chances is now visibly a function of three things: the distribution of grades by social status, the percentage promoted, and the promotion bias. We can make at least the following statements:

1) as the percentage promoted approaches 100, the range of chances converges on 1:1;

2) since the upper classes get the best grades, even zero bias produces a range of chances $>$ 1:1;

3) but throw negative promotion bias in as well, and we get spectacularly high ranges, especially with low percentages of promotion;

4) negative promotion bias of a practicable, even of a theoretically defensible, level, may keep the range $\simeq$ 1:1.

These biases could persist until all 100 were promoted, in which case it would be impermissible to speak of bias; or until a rigid grade minimum were enforced. This might be "no D s". Then we should eventually promote all Cs, and cotan bias = 0. The more important the difficulty of actual teaching (i.e. the greater the teacher control over admissions) the more likely is zero bias: we don't care how meritorious are VDs, or how pressing the parents of IDs, we just resist taking them. But the more important it is to save public money (i.e. the greater is Treasury control over admissions) the more likely is positive bias.

Nothing in this analysis should be taken to imply that the lower classes could ever get quite as good grades as the upper. On the contrary I hold that IQ's in large part are genetically determined, and that in all societies there is 'genetical teaching' of the lower social classes, since there is always much assortative mating and some social mobility. This teaching can only be countered by an additional negative grading bias, which I shall not discuss.

3. Negative Bias and Communism

Negative promotion bias is extremely rare. We meet it immediately after Communist revolutions, if I - V be taken as the old social hierarchy. But only Mao Tse-tung has succeeded in discriminating against the new post-revolutionary hierarchy, and then not for long, and in political conditions amounting to a revolution against that hierarchy. In USSR the range of chances is very capitalistic (6.2:1).

Social Class and Higher Education, USSR, 1971

			%
	in population	in student body	relative chance
(employees A)	(12.5)[e]	(39.2)[c]	(3.136)[c]
Employees	25	53.1	2.124
(employees B)	(12.5)[e]	(13.9)[a]	(1.116)[a]
Workers	55	36.2	0.658
(rural experts)	(1)[d]	(1.1)[b]	(1.116)[b]
Peasants	20	10.7	0.535
(ordinary peasants)	(19)[d]	(9.6)[c]	(0.505)[c]

Range of chances 6.2:1 Promotion percentage 19.5[f]

Source: Matthews 1975, p.89. The figures in brackets are my interpolations.

a. On the assumption that the lower half of employees had a chance equal to the average of all workers and employees. This assumption is both arbitrary and crucial.

b. I give the kolkhoz chairmen and other experts classified as peasants the same chances as a lower employee.

c. Residual.

d. Cf. Hall 1975, p.112. Somewhat of a guess: 11% of the rural population is experts, but at least a half must be employees not peasants.

e. Employees are divided fifty-fifty into "non-specialists" and "with diploma" : Rutkevitch and Filippov 1973, p.244.

f. Students admitted at all ages ÷ population aged 20.

It is possible, nay even likely, that social bias (as above) is zero in Communist countries vis-à-vis entrance into higher education generally, though scattered data tell us very much the opposite about quality of institution. Therefore the primary social distribution of grades must be very unequal indeed, to achieve such an unequal range of chances of higher education as a whole, on such a comparatively generous promotion percentage.

The life chances of the children of the "intelligentsia", or employees with diplomas, seem still to be censored out of publications. But here is the top of a table for the Tatar ASSR, 1967-68 (the bottom is heavily weighted with the peasant children of illiterate Tatars, and so quite unrepresentative).

Education of father	No. of children	Education of child 4-6 years	7-9 years	10 years	secondary specialised	higher
4-6 grades	253	17.4	39.5	14.6	9.9	8.3
7-9 grades	62	6.4	38.7	21.0	9.7	9.7
10 grades	40	2.5	22.5	27.5	30.0	10.0
secondary specialized	16	-	6.3	12.5	37.5	43.7
higher	22	9.0	-	18.2	4.5	63.7

Source: Arutiunian 1973, p.339.

My guess above gave the "with diplomas" a chance of higher education 2.8 times as high as the "non-specialists". In this sample (which is over 50% Russian in secondary specialized and higher - Arutiunian 1973, p.349) it is 5.0 times. Poland is similar (thousands or per cent):

	Economically active[b] 1970 number (thousands)	percent	Students by origin[a] (1970)	Relative Chance[d]
		(10.55)	(19.9)	(2.56)
employees in socialist sector (including co-op farms 41)	10,605 (non-manual)[c]	21.1	39.9	1.89
		(10.55)	(20.0)	(1.22)
employees in private	208 (manual)[c]	42.7	37.5	0.88
"employees not at work"	515	3.0	-	-
peasant farm owners and their family help	5,400	31.9	19.3	0.61
others working on own account	216	1.3	3.3	2.54

Range of chances 4.2:1 Promotion percentage 9.6[e]

In calculating the range of chances we omit the queer case of priests and individual craftsmen (last row). 42% of the population is in the extreme groups. The Soviet 6.2:1 rests on extreme groups embracing 32% and so implies less inequality.

a. Lane and Kolankiewicz 1973, p.339.

b. Rocznik Statystyezny 1970, p.91.

c. Rocznik Statystyezny 1968 p.69 (including allowance for the more manual character of socialist agriculture and all private employment).

d. Proceeding as for U.S.S.R.

e. Students admitted at all ages ÷ age group 20.

4. The Present Fiscal Redistribution of Wages and Total Income by Education

The distributive effect of education has two extremely distinct aspects: first, in purely static accounting terms who benefits from the public expenditures on education and who pays the taxes? Secondly, what is the ultimate effect of the distribution of education itself on the distribution of income?

The first question is extremely dull, and has engaged far too much competent ingenuity. If the distribution of income is right no-one should care what the distributive effect of this or that public programme or tax is. Each programme will affect resource allocation of course, and that remains important. But if in such conditions we keep worrying about the distributive effect of this or that public or private expenditure, first we worry in vain - for the total situation is all right - and secondly we inhibit all activity whatsoever:

> --- the native hue of resolution
> is sicklied o'er with the pale cast of thought
>
> \- Shakespeare, Hamlet

> Shall I part my hair behind?
> Do I dare to eat a peach?
>
> \- T.S. Eliot

For after all peaches may be produced by very rich farmers, owning many acres and employing little labour at high wages; whereas, say, carrots (though less tasty) are produced by the lowest paid stoop labour on marginal farms. If it is clearly intolerable for private individuals to have to consider such matters every time they buy fruit and vegetables it is not less impracticable for the government - which heaven knows is beset by more arrière-pensées of all sorts - to think about them every time it spends money.

This view seems to be acceptable to Swedes but not Americans, and this fact explains much: if the government possesses the instruments and the will to redistribute income generally, and has already used them, it need not bother with the distributive effect of each expenditure and tax, but if the income-tax does not bite and the social services are small egalitarian critics will pick nits in every line of the budget. The opera, they will say, is enjoyed by the rich and employs rather rich people; new roads carry the cars of the rich through the neighbourhoods of the poor; and above all universities attract rich children and produce rich alumni. True, but if they go on talking like that long enough there will be no opera, roads or universities.

For the fact remains that most U.S. public expenditures are for necessary objects. To pester the authorities with micro-distributive questions is to lower the expenditure on particular necessary objects that happen to favour the rich. Yet absolutely to neglect the distributive effect of particular programmes is not humanly possible. I have no solution for the limits of attention here, so shall content myself with the warning that it is far better to forge instruments of general redistribution and use them.

But if public expenditures must really be divided up into separate funds there are right and wrong ways of doing it. The educated taxpayers must surely not be considered to pay 16% of his taxes for education (where 16% is the percentage of public expenditure on education in the F.R.G.); but such proportion of his taxes as will cover what he received. This is, of course, a higher percentage for the better educated. I am therefore mystified by Pfaff and Fuchs' across-the-board 16% of tax payments which they nowhere explain; and greatly prefer their procedure on p.113 . Surely they cannot simultaneously approve of student loans and use an accountancy that blurs the amount actually paid for education.

5. The Redistribution of Future Wages and Total Income by Education

"It is questionable", say Pfaff and Fuchs, "that by an extended supply of education we shall actually bring about a significant redistribution of income in the near future". They appear here to be relying on their pessimism about the equalization of access to education, with which I wholly disagree (see section II). This has happened and will continue to happen in the near future.

But why should not this expanded access to higher education change rather than equalize the distribution of income? The obvious and simple case is when graduates are over-produced in relation to their traditional jobs. Watanabe gives a classic illustration: some graduates are becoming blue-collar workers. I assume this is not on revolutionary but on income-maximising grounds; but one must remember that many Japanese universities are very young and the merest marginal degree-mills that even a "credentialist" employer would be wise to neglect. Then isn't Japanese higher education simply putting rather different people into the same number of top jobs? - and merely disappointing a whole lot of others by putting them back where they would have been anyway, even thrusting them down? Or isn't the equalization of the pay of education levels in his Tables 7 and 13 due to something quite irrelevant, such as technical progress requiring more skill of the lowest classes or the cessation of rural migration. These questions require more analysis than they usually get.

Imagine that graduates are newly over-supplied to a hitherto static economy. Saving strong nepotical pull (weak nepotism operates only in the ceteris paribus case) only the best graduates will get the traditional jobs T. In case (i) let the number of such jobs be constant. More candidates appear, the quality of T rises, and - we assume - employers are so pleased that they do not lower salaries. But some of these better graduates will be children of poor parents. These are the promoted, P, with high salaries and low inherited capital (1).

Those they have "bumped" are the demoted, D. These inherit capital from their rich parents but only earn a medium salary, since they take some of the next best jobs N; indeed precisely as many as P have vacated. Employers are again so pleased with the higher quality that they do not lower salaries (in face of newly educated competition for N from further down the ladder).

In this simplified case, then, salaries are as unequal as before, but incomes are more equal, since P have less inherited capital than the old T, while D have more of it than the old N. Saved capital is also more equal since both P and D are in an intermediate position to accumulate it. So the top income group, which used to be as large as T, is now only T - D and the top quantile T now includes people who are either P or D, and so cuts off at a lower income.

In a more complicated case (ii) salaries fall in face of the increased supply, and T employment expands. This lowers both supply and demand for N jobs, so that the fate of N salaries is unpredictable. But whatever happens to N the total salary range between T and the bottom has narrowed. Incomes are also equalized, since some T people inherit and all save less capital. The intermediate position of P and D remains, but now P > D. Case (ii) is strictly one of induced technological change: a different input mixture, resulting in this case from a different input-price structure, causes inputs to be used in different proportions. This is a very minor sort of change, yet it may require new knowledge to be developed. We shall still call it a static economy. Anyhow case (ii) is the ordinary market case. Where on the other hand salary hierarchies and job numbers are set administratively - as in the public sector - case (i) operates (2). Innumerable other cases can be imagined, but not, I think, with profit.

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(1) According to my extremely rash estimates for the U.S.A. and U.K. inherited capital is about ¼ of all personally held capital. This treats widows as not inheriting and all saving out of the income from inherited capital as not inherited.

(2) Case (i) is like the Thurow-Lucas model briefly described by Okner and Rivlin.

We are then on the whole right to assume that more education equalizes incomes and also wages. But autonomous technical progress may have an effect. The early Victorians assumed that it differentiated, and were probably right for their time. The moderns are rightly less sure, but seem mainly to assume that it equalizes; in this they are probably confusing it with expanded education.

So Watanabe should not, perhaps, have assumed without a word that the narrowing of Japanese wage differentials was due to the expansion of education. In particular has not the far slower inflow of peasants - another factor again - taken much pressure off the lower end of the wage-labour market? If wage-earners have a lower per capita income than farmers, young unskilled wage-earners must be contemplating a drift back to the land! Or can we be looking at the break-up of the Nenko system among young unskilled workers? Are they trading life-time wage security for higher starting wages? Indeed do these explanations differ? It is unfortunately impossible to tell from Watanabe's many tables the relations of pay between ages and skills simultaneously. Consequently we don't know whether (as I suspect) the young unskilled workers are creeping up on everyone else. If they are, it is not due to surplus graduates but to the price of rice. After all surplus graduates would simply take the next job lower down, in one of the ways discussed above: more education could hardly raise unskilled wages.

We note that Japanese wages have become more equal while U.S. wages have become less so (Okner and Rivlin). Yet education has expanded at about the same rate (OECD Secretariat):

Years of Education

	age 30-34	old	% growth
Japan 1970	11.0	7.4 (65+)	49
U.S.A.	11.8	8.1 (75+)	44

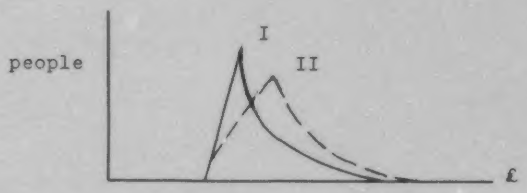
This however is during a period when the U.S. wage-labour market has suffered substantial "peasant" immigration: Puerto Ricans, Southern Negroes, (illegal) Mexicans.

6. The Kuznets Hypothesis

This hypothesis (Kuznets 1955) has never appealed to me, as a Sovietologist or a Briton. It is true that it fits the U.S.S.R., but there is something very peculiar and *voulu* about Stalin's plunge into inequality (in about 1934; cf. Wiles 1975a). It is almost as if he had done it to satisfy Kuznets, because I can find no other rationale. And then the doctrine does not fit any country in Eastern Europe. Most of them rather unindustrialized at the moment of revolution, they were each strikingly equalized by that event, and have grown rapidly at a virtually unchanged level of equality from that day to this (Wiles 1975a).

A Sovietologist is by compulsion an amateur economic historian of Russia too. In fairness to Kuznets we treat this as a separate country instantiating only the loss of equality during the early phases of economic growth (1861-1913). But the new proletariat were about twice as rich as the peasantry, and consequently formed a vast new middle class; while at the top the land lords sold their land unwillingly (hardly a sign of enrichment) - and not to capitalists but to kulaks! The capitalists were indeed a new element at the top, and someone must have made a mint out of urban ground-sites, but this variegated picture tempts me to assert that Kuznets' native country eluded him. The movement of inequality might well depend for its very direction on the index chosen - had we any figures. The same must surely be said of Britain (for which also we have no figures). Industrialization created, as in Russia, the same vast middle class - the proletariat; and the same counter-aristocracy - the capitalists. But we know also that this time the aristocracy bettered themselves too; by urban ground-sites and by a very unRussian capacity to farm. In general *aristocratic* pre-industrial societies probably resemble I, and their industrial capitalist successors II. The range and all the quantile ratios are greater but the mode practically coincides with the median instead of the lower quartile, and your answer depends on your choice of index. It is of interest that the Gini coefficient tends to count I as more equal (by my own workings on a number of arbitrary arrays resembling I and II).

Figure I



In this connection neither Kuznets (1955 p.8) nor Watanabe is satisfactory on the effect of peasant migration. If as Watanabe says peasant society became more equal this surely means the poorer peasants did the migrating (as was in fact the case with Irish and Italian migration to the U.S.A.): not the very poorest, who were doubtless too remote or too unenterprising, but above all not the even moderately well to do, who had nothing to gain. The migrants came from the, say, first and second peasant deciles. They enriched themselves - otherwise they would not have migrated - by joining the, say, second non-peasant decile and so making that society more unequal. But on those assumptions it follows mathematically that Japanese society as a whole was equalized, since a large group had moved from the top of the first to the middle of the second national decile. Although the migration upsets every single decile boundary in the peasant and the non-peasant society its only effect on the national boundaries is to raise the lowest of them. Kuznets seems to assume random migration in respect of all deciles. But the whole point of practical work on distribution is to specify from which decile to which decile one goes.

The phenomenon is so general that it is very important to analyse correctly. Even Polish economists have fallen into the trap of inferring from an increased inequality of wages a more unequal national distribution (Wiles 1975b). It might be nothing more than the effect of poor peasants enriching themselves by entering the bottom of the socialist sector. The main reason why our assumption might be false is that the low existing non-peasant incomes might be depressed by the migrants.

It is thus improbable that "the effects of changes in income inequality within the urban and rural sectors cancelled out in the economy as a whole" (Watanabe). This is to neglect the question of precisely who migrated from which decile to which decile. The most probable type of migration will have equalized both the peasant and the national distribution.

7. Gini's average and excessive aggregation

The last sentence reminds me to utter my standard delenda est Carthage. Apart from Pareto's constant, the sole virtue of which is that it can be used for interpolation (1), all the single coefficients whereby we try to describe a distributive array are averages of differences. They are very sophisticated averages, and they have the most interesting (to some) mathematical properties. But they are averages all the same, and it passes my comprehension how an average can describe adequately a distribution. Gini's average (1) in particular has already been shown to be monstrously insensitive to movements at the extremes(2). We have also just seen that if an aristocratic country develops a large new middle class the average also (admittedly this time along with all the quantile ratios) fails to reflect that. Its empirical, arithmetical, behaviour is so paradoxical that I have ceased altogether to use it. It is more than unlikely that if the "income of the "poor" (the years of education enjoyed by the least educated) rises, and a high minimum is established, while the "middle classes" also gain enormously, we should want to call the ensuing redistribution more unequal. Probably the "75+" and the "30-34" curves are of the I and II shapes in Figure I respectively. Probably the paradoxes of this table could be sorted by simple arrays. Like Japanese migration, it is not amenable to Gini's average.

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(1) It has no economic plausibility; it describes the situation above the mode only; it cannot locate the mode.

A similar flaw is to present indeed actual arrays, but in a much more aggregated form than the data compel. Aggregation is of course akin to the search for a magic number. Thus Okner and Rivlin regularly deal with the lowest quintile. Mingat and Eicher bury the grandes écoles in a larger top group and so are able to say that France presents a normal picture(3). And in the U.S.A. there are 40 mn people in the lowest quintile, all the way from Indians on reservations to respectable Vermonters on pension! Yet the Current Population Reports give ample detail for the interpolation of a finer breakdown, say as far as the lower semi-decile (cf. Wiles and Markowski 1971, p.364) and this entirely alters their gloomy picture. At a guesstimate, without being able to go back to the source in the time available, I put the extreme income shares in the U.S.A. as follows(based on Okner and Rivlin):

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(1) "Coefficient" sounds grand and scientific; "average" is what the thing is.

(2) Wiles 1974 Lecture I: Michal 1975.

(3) On this occasion at least my vulgar factology permits me to be more pessimistic than another contributor.

	1952	1972
lower semi-decile:		
in money[a]	0.8	0.92
in money and kind[b]	0.8	1.32
(lowest quintile)[c]	(4.9)	(5.4)
upper semi-decile		
in money[a]	17.7	15.9
after income tax[d]	15.6	14.0
range:		
in money before tax	22:1	17:1
in money and kind after tax	19:1	11:1

a. My interpolation (workings available on request).

b. "Kind" adds 44% to the bottom quintile in 1972, zero in 1952 (Okner and Rivlin)

c. Straight from Okner and Rivlin.

d. Using 1966 rates only. I have set the rate on the lower semi decile at zero, and on the upper at 13.4% (Okner and Rivlin). I have neglected all other taxes.

Had Okner and Rivlin done the detailed work (avoiding my guesses!) they would inevitably have come up with some such result. Is this picture really "dismal"? Just what is the semi-decile ratio supposed to do in 20 years to still the liberal conscience? The perpetual quoting of the bottom quintile share (e.g. Budd 1970) may have had substantial political effects - not indeed regrettable ones, but still ill founded.

8. The sources of Gloom

I am not in favour of sweetness and light, but of truth. It is a mere chance that this note is so optimistic, and I feel very pessimistic about nearly all other aspects of the economic future. But contrary to what is implied or stated:

i) German life-chances have become much more equal, and will continue to do so.

ii) The migration of Japanese peasants probably equalized Japanese society.

iii) The new U.S. welfare state has revolutionized the situations of the very rich and the very poor (but not, indeed, of the rich and the poor).

iv) The range of chances to get into higher education is more equal in several Member countries than in Poland or the U.S.S.R.

Indeed equality is breaking out all over the place. The centile/median ratio of wages and salaries in U.K. has fallen ever since we had figures for it, and still more so in recent years (Routh 1965, Wiles 1975a). Sweden and the U.K. are probably more equal than the U.S.S.R. (Wiles 1974, p.48; subsequent Swedish workings available on request). Yet neither the Swedish nor the British contribution to this conference sounds like that either.

Gloom is of course ideologically motivated. We have all been through the student revolution, and resented it, and resented ourselves for resenting it. So we do our best and try to feel bad about the alleged failure of liberalism to achieve its allegedly modest goals. Most of us have provided an apparently obligatory variation on this theme at the very moment when the figures have at last begun to give it the lie.

Now how, being statisticians, have we managed to achieve that?

i) We have overlooked the trends the figures throw up, and concentrated on the still discreditable static picture.

ii) We have used magic numbers like Gini's average, which conceal the movements in the crucial relativities.

iii) We have hidden the crucial relativities by unnecessary aggregation.

iv) We have insisted on treating education as a separate fund, no doubt by a déformation professionnelle. But it is obvious that some very necessary government activities favour the rich. Nothing can or should be done about this - except to have adequate general taxes on the rich.

v) We have forgotten the income tax, which is in some Member countries both progressive in theory and paid in practice. Gross income distributions for Sweden, Norway, the Netherlands and the U.K. simply will not do.

vi) Faced with incontrovertible evidence of improvement we place an entirely unjustified emphasis on whatever remains wrong. An instance not hitherto discussed in Halsey's "fluidity". This appears to mean downward mobility, nothing less than which will satisfy Halsey that Britain is a better place. But it is difficult to achieve downward mobility in a growing economy (and it makes people dreadfully unhappy).

vii) We even find reasons for condemning upward mobility, now that it is incontestably present. Yet it remains clear social justice, an equalizing force of a kind and necessary for meritocracy.

viii) For meritocracy is a fine and necessary thing and should be part of any education system's goals. It means that we are ruled, *under whatever system of government,* by people of proven ability. By whom else do we wish to be ruled? Not to be ruled at all is anarchy - but there were no anarchists present at the seminar. A de-meritocracy (which is what we have) is simultaneously unjust and inefficient, and *quartum non datur*. I do not understand the use of this word in a pejorative manner, since it has no pejorative sense.

The primitive king executed the messanger who brought bad news. The O.E.C.D. will not execute us for bringing good.

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THE ROLE OF EDUCATION IN THE OVERALL FRAMEWORK OF EQUALISING POLICY INSTRUMENTS

LE ROLE DE L'EDUCATION DANS LE CONTEXTE GENERAL DES POLITIQUES D'EGALISATION

Income Distribution Policy in the United States

by

Benjamin A. Okner and Alice M. Rivlin*

The OECD countries face similar problems with respect to inequality and policies to reduce it. They have used the taxing and spending powers of government to mitigate the inequalities of income and wealth generated by private capitalism, yet substantial inequality persists. They have provided schooling at public expense and endeavored to sever the connections between family background and access to higher levels of education and better paid jobs, but still such connections remain. All are engaged in a recurring debate about the desirability and effectiveness of additional equalization policies, including tax changes, transfers in cash and in kind, and additional investment in human capital, especially through education.

Nevertheless, both the nature of the inequality problem and political perceptions of it differ from country to country. In this paper we focus on inequality - primarily income inequality - in the United States and the historical-political context in which policies that affect inequality are being discussed. The first section gives a brief description of recent trends in the distribution of income in the United States - a picture whose most remarkable feature is the absence of change. The second section discusses the role of government in mitigating inequality and attempts to explain why the substantial increases in government programs, especially transfer programs, have not done more to change the distribution of income. The third section addresses another mystery: why has the equalization in educational attainment that occurred in recent years not made the distribution of income more equal? The final section describes the current debate over equalization policies and some major choices among strategies for reducing inequality in the future.

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1. Income Inequality in the United States

Statistics on the distribution of income in the United States leave much to be desired, but they clearly reveal two facts: (a) the distribution of income in any one year is highly unequal; and (b) a substantial fraction of the population lives at income levels that the majority regards as inadequate. Moreover, although there is some evidence of equalization in the 1930s and 1940s, the size distribution of family income has not changed appreciably in the last 25 years, and the distribution of earned income for males has actually become somewhat less equal. Indeed, from an egalitarian point of view the only bright spot in the income statistics in recent years has been the relative improvement in the position of blacks, although even here the picture is not uniformly favorable.

Available Statistics

Inequality clearly involves the distribution of many characteristics - income, wealth, social status, political power, access to public services, and social mobility over time. We concentrate on annual money income because statistics on its distribution are available and because a family's annual income is a fairly good measure of its current access to food, clothing, shelter and other goods and services produced in the private economy.

The basic source of information on the distribution of income in the United States is the Current Population Survey (CPS) which has been conducted annually since 1947. Each March the U.S. Bureau of the Census interviews 50,000 households to obtain information on their income for the preceding calendar year as well as information on the work experience of family members and various demographic characteristics.

The CPS sample is drawn from the entire population of households, but the income estimates based on it are more accurate for the mass of wage-earning Americans in the middle of the income distribution than for the very rich and very poor. It is difficult to gain access to very high income people in a field survey, and the very poor also tend to elude or mistrust the Census interviewers. Capital gains, which account for a major share of total income among the rich, are excluded from the Census income concept, and transfer income, which accounts for a major share of income among the poor, is under-reported. Moreover, for all income groups, the Census income definition omits many components of income. In addition to capital gains, it excludes all imputed incomes and non-money receipts. Thus, the net imputed rent on owner-occupied homes, the value of employee fringe benefits, and the value of government transfers in kind (e.g., food stamps, medical benefits, and housing allowances) are all excluded from CPS income. There is also no attempt to value goods and services produced at home. Despite all their shortcoming, however, the CPS data are the best available for studying the U.S. distribution of income and are used extensively in this paper.

Income Shares and Poverty

The distribution of income in the United States is far from equal. As may be seen in Table 1, the 20 percent of families with the highest income received 41 percent of aggregate family income in 1973 and the 20 percent with the lowest incomes received only 6 percent. Among unrelated individuals the distribution was even more unequal. The highest fifth received 50 percent of the income in 1972 and the lowest fifth only 4 percent. (1)

While data for the years before World War II are not exactly comparable to those collected recently and have to be pieced together from a variety of sources, they suggest that substantial equalization of income did take place in the 1930s and 1940s. The share of the top quintile, especially the top five percent apparently dropped substantially between 1929 and the end of World War II, with the major gains accruing to the middle-income groups. (2) During the last two decades, however, income shares have hardly changed at all. Between 1953 and 1973 the shares of both the lowest and highest fifths increased slightly, while the share of the top 5 percent declined, but the shifts have been slight (see Table 1). (3)

The general picture is confirmed by a recent analysis by Radner and Hinrichs based on a more comprehensive definition of income than that used by the CPS. (4) The authors have included not only money income but estimates of various types of inputed income as well as estimates of government benefits to individuals under the medicare and food stamp programs. Partly because these government benefits to the poor have increased in recent years,

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(1) Unrelated individuals are persons 14 and over not living with relatives. They may be living alone, in a household with non-relatives, or in group quarters such as a rooming house.

(2) Haley estimates that the share of the top quintile dropped from 54 percent in 1929 to 46 percent in 1947. See B.F. Haley "Changes in the Distribution of Income in the United States", in Jean Marchal and Barnard Ducros (eds.), The Distribution of National Income, (St. Martin's Press, 1968), Table 2.

(3) Small fluctuations in income shares have occurred annually since World War II and are at least partly related to the level of economic activity. Inequality declined somewhat between 1961 and 1967 when the economy was growing rapidly and the unemployment rate was dropping, and rose somewhat after 1969, when growth slowed and unemployment rates were higher. See testimony by Edward C. Budd, The 1974 Economic Report of the President, Hearings Before the Joint Economic Committee, 93 Cong. 2 sess. (1974), Pt. 1, pp. 140-50.

(4) D.B. Radner and J.C. Hinrichs, "Size Distribution of Income in 1964, 1960, and 1971", Survey of Current Business, Vol. 54 (Oct. 1974), pp. 19-31.

Table 1

Percentage Share of Aggregate Money Income (1) Received by Each Fifth of Families and Unrelated Individuals, Ranked by Income, 1953, 1963 and 1973

Income Rank	1953	1963	1973
Families			
Lowest fifth	4.7	5.0	5.5
Second fifth	12.4	12.1	11.9
Third fifth	17.8	17.7	17.5
Fourth fifth	24.0	24.0	24.0
Highest fifth	41.0	41.2	41.1
Top 5 percent	15.8	15.8	15.5
Unrelated individuals			
Lowest fifth	2.3	2.6	3.7
Second fifth	6.8	7.5	8.6
Third fifth	13.5	12.8	14.4
Fourth fifth	24.4	24.8	23.9
Highest fifth	53.0	52.3	49.5
Top 5 percent	25.3	20.1	20.0

Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 97, "Money Income in 1973 of Families and Persons in the United States" (1975), Table 22.

(1) The income (before taxes) boundaries of each fifth of families in 1973 were: lowest fifth - under $6,081; second fifth - $6,081-$10,034; third fifth - $10,034-$14,000; fourth fifth - $14,000-$19,253; highest fifth - $19,253 and over; top 5 percent - $30,015 and over. Income includes wages and salaries, proprietors' income, interest, rent, dividends, and money transfer payments but excludes income from the sale of capital assets.

Radner and Hinrichs find a somewhat greater increase in the share of the lowest quintile this is indicated by the CPS: the lowest quintile of families increased their share of total income from 5.8 to 6.6 percent between 1964 and 1971, while the share of the top quintile dropped from 43.1 to 42.0 percent. Even with a broader concept of income the change is hardly overwhelming.

Real incomes have, of course, been rising substantially and fairly steadily throughout the whole period for which we have data. Between 1947 and 1973 median family income in 1973 prices doubled (rising from $6,032 to $12,051) while the median real income of unrelated individuals rose even more rapidly (from $1,953 to $4,134, or by 112 percent). Since the entire income distribution has shifted upward without appreciable changes in relative shares, the absolute gap between the rich and the poor has widened.

In the United States much of the interest in income distribution statistics is focused on those at the low end of the scale the population living in poverty. In the mid-1960s the government adopted a poverty income level (now called the low-income level) defined on the basis of family size, composition, and farm or nonfarm residence. Over the years this definition has been adjusted to reflect changes in the cost of living (but not in the prevailing standard of living). In 1973 a nonfarm family of four was defined as poor if it had an annual income of less than $4,540. This is about one-third of the median income for four-person families and is generally conceded to be a very meager level of income by U.S. standards.

Under the definition which associates poverty with a fixed level of real income, the poverty population has declined substantially in recent years - from 39.5 million, or 22.4 percent of the population, in 1959 to 23.0 million, or 11.1 percent of the population, in 1973. The number of people living in poverty declined rapidly between 1962 and 1968 - years of rapid economic growth and falling unemployment rates - but the rate of change has slowed considerably since then.

Compared with the population as a whole, the poor population contains a high proportion of old people, children, blacks, and families headed by women (Table 2). Moreover as the poverty population has declined it has become less and less similar to the population as a whole. In 1959, 77 percent of the families in poverty were headed by a male and 38 percent of these family heads worked full-time all year. Thus, much of the poverty problem was associated with low wages. By 1973, however, many families with a strong attachment to the labor force had moved out of the poverty population as real wages rose. The proportion of poor families with male heads had dropped to 55 percent and 27 percent worked full-time all year; in other words only 15 percent of poor families were headed by a fully-employed male.

Table 2

Persons Below the Poverty Level by Age and Sex of Head of Family; Selected Years 1959-1973

Population group	1959	1966	1968	1973
Number of poor persons (thousands)				
65 and over	5,668	5,003	4,646	3,354
Under 65				
Persons in families with female head and female unrelated individuals				
White	5,109	4,408	4,326	5,082
Nonwhite	3,000	3,436	3,643	4,385
Persons in families with male head and male unrelated individuals				
White	18,484	10,517	9,115	7,369
Nonwhite	7,228	5,032	3,659	2,788
Total	39,490	28,510	25,389	24,460
Percentage of poor persons				
65 and over	14.1	17.9	18.3	14.6
Under 65				
Persons in families with female head and female unrelated individuals				
White	12.9	15.5	17.3	22.1
Nonwhite	7.6	12.1	14.3	19.1
Persons in families with male head and male unrelated individuals				
White	46.8	36.9	35.9	32.1
Nonwhite	18.3	17.6	14.4	12.1
Total	100.0	100.0	100.0	100.0

Source: Derived from U.S. Bureau of the Census, Current Population Reports, Series P-60, No.98, "Characteristics of the Low Income Population, 1973" (1975), Table 1.

Since average real incomes have been rising, people living at or below the poverty line have been getting progressively poorer relative to the rest of the population. In 1963 the poverty line for a family of four was about 50 percent of the median income for such families while by 1973 the ratio had fallen to 38 percent. Indeed, if poverty is defined as a relative state - deprivation of a level of living enjoyed by others - no progress has been made in alleviating poverty in the United States in recent decades. If the poverty threshold were defined as one-half of the median income, the proportion of poor people in the population would have remained roughly constant since the end of World War II (see Table 3), while the absolute income gap between the poor and the median family widened. Of course, this is just another way of stating the facts noted earlier: the U.S. distribution of income has been shifting upward during the past two decades while the relative shares of various income groups have stayed almost constant.

When the focus shifts from total family income to earnings,(1) the picture becomes - from an egalitarian point of view - even more dismal. The distribution of male earnings in the United States has become somewhat more unequal in recent years.(2) Part of the explanation relates to increases in the proportion of young people in the labor force and in the proportion of (apparently voluntary) part-time work. Part relates to changes in the occupational structure (increases in highly-paid occupations) and part to greater earnings increases in occupations already at the high end of the scale.

The Position of Blacks

Concern with the distribution of income in the United States relates not only to the overall distribution, but also to the relative position of identifiable minority groups, especially blacks. Blacks, who comprise about 11 percent of the total U.S. population, are heavily concentrated in the low-income brackets. About a third of the population with incomes below the official poverty line in 1973 was black and about a third of all blacks were poor. (3)

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(1) The distinction between total family income and personal earnings is not insignificant. In addition to earnings, total income includes income from property plus public and private transfers. Total income is also a function of how much of the family's potential services are actually employed.

(2) Peter Henle, "Exploring the Distribution of Earned Income", Monthly Labor Review. Vol. 95 (December 1972)

(3) U.S. Bureau of the Census, Current Population Reports, Special Studies, Series P-23, Nº 48, "The Social and Economic Status of the Black Population in the United States, 1973" (1974), Table 16.

Table 3

Percentage of U.S. Families with Income Less Than One-half the Median Income, Selected Years 1947-1973

Year	Percent
1947	19.0
1950	20.0
1955	19.9
1960	20.2
1965	19.8
1966	19.2
1967	18.8
1968	18.3
1969	18.5
1970	18.9
1971	19.3
1972	19.5
1973	19.4

Sources: For 1947-60, The Concept of Poverty, Task Force on Economic Growth and Opportunity (Chamber of Commerce of the United States, 1965), Table 1, p.75. Data for 1965-73 estimated from U.S. Bureau of the Census, Current Population Reports, Series P-60, No.97, Money Income in 1973 of Families and Persons in the United States" (1975), Table 10.

Black economic progress has come in fits and starts. The relative position of blacks improved substantially in the 1940s as World War II generated extraordinary demands for labor and many blacks left the rural South for better paid jobs in northern cities. Another spurt of progress occurred in the 1960s when tight labor markets, rapid economic growth, and legal action to reduce racial discrimination apparently combined to improve the relative income position of the nonwhite (primarily black) population. As may be seen in Table 4, the ratio of median earnings of black males to those of white males, which moved erratically around .57 through the 1950s and early 1960s, rose from .59 in 1966 to .67 in 1969 (where it stabilized for a few years) and then rose to .69 in 1973. Even more impressive increases in the black/white ratio occurred for women and have continued into the 1970s.

If one focuses on family income, however, a somewhat different picture emerges. The ratio of black to white family income rose from .55 in 1965 to .64 in 1970, but has since declined and is now back to the 1966 level (see Table 5). How could this ratio have declined when the earnings ratios did not? One reason is that the proportion of families headed by females has increased substantially, especially for blacks, and although black women now earn almost as much as white women they still earn less than black men. There was also a slight decline in the ratio of black women's salaries to those of whites in 1973. In addition, the relatively high unemployment rates of the 1970s have hurt black families more than white families and have disproportionately increased the number of black families without any earners.

The income distribution picture painted above would not be particularly surprising - indeed, there is not much to be explained - if it were not for two other sets of facts: (a) the growth of government, especially federal government programs benefitting low-income people; and (b) the increase in educational attainment and its equalization. The next two sections deal with the question: Why, in view of these two trends, was there no substantial equalization in the distribution of income?

2. The Impact of Government on the Distribution of Income

Surprise that public programs have failed to change the distribution of income grows out of general impressions that

(a) the government sector has grown disproportionately in recent years;

(b) that a growing share of government spending aids the poor;

(c) that such spending is financed by progressive taxes.

Table 4

Ratio of Nonwhite to White Wage and Salary Income, by Sex, 1947-1973

Year	Male	Female
1947	.54	.34
1948	.47	.43
1949	.50	.40
1950	.61	.37
1951	.62	.42
1952	.58	.41
1953	.59	.49
1954	.57	.45
1955	.59	.43
1956	.56	.45
1957	.55	.45
1958	.58	.45
1959	.58	.53
1960	.60	.50
1961	.57	.51
1962	.55	.53
1963	.57	.53
1964	.59	.58
1965	.58	.58
1966	.59	.66
1967	.64	.70
1968	.66	.72
1969	.67	.79
1970	.66	.85
1971	.67	.86
1972	.68	.94
1973	.69	.90

Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, "Consumer Income", various issues.

Table 5

Ratio of Nonwhite to White Median Family Income, 1959 to 1973

Year	Ratio
1959	.54
1960	.55
1961	.53
1962	.53
1963	.53
1964	.56
1965	.55
1966	.60
1967	.62
1968	.63
1969	.63
1970	.64
1971	.63
1972	.62
1973	.60

Source: U.S. Bureau of the Census, Current Population Reports, Special Studies, Series P-23, No.48, "The Social and Economic Status of the Black Population in the United States, 1973" (1974) Table 6.

These impressions are partly erroneous - on balance the U.S. tax system is not very progressive, even at the federal level. They are also partly irrelevant - the standard (i.e., CPS) income distribution statistics reflect income before taxes and do not count as income any government services or in-kind transfers. Cash transfers to low-income groups, have indeed grown rapidly and are, at least in principle, counted as income in the Census statistics. The fact that the increase in cash transfers has not brought about a visible equalization in income shares deserves explanation. As will be seen below, the mystery may be partly explained by the fact that older people retire earlier so that social security transfers replace earnings and partly by the growing tendency of adults to maintain separate households rather than live with relatives.

The Growth of Transfer Programs

Total federal government expenditures **increased from** 18.6 percent of GNP in fiscal year 1960 to 20.8 percent in fiscal year 1975. Moreover, transfers to individuals both in cash and in kind have increased more rapidly than the budget as a whole. Federal in-kind transfer programs to help individuals buy essential goods and services, such as food, housing, and medical care were miniscule in 1960, but grew to an estimated $34 billion by fiscal year 1975 (11 percent of the federal budget and about 2 percent of the GNP). About half of this growth was in two federal programs to help the poor and the elderly (many of whom are poor) pay for medical care. Other programs that increased substantially include public housing subsidies, food stamps, and grants to help students pay the costs of higher education. A substantial fraction of these transfers in kind go to low-income people. Some of the programs (such as public housing) provide fairly substantial subsidies to a very small proportion of the poor; others (such as food stamps) provide smaller average subsidies to much larger numbers of people.

Transfers in kind are not counted as income in the Census statistics and no regular information is collected about their distribution by income class. Work is in progress at The Brookings Institution to piece together the available information and make estimates of the dollar value of federal benefits in kind received by persons at various income levels. The very rough estimates shown in Table 6 indicate that if federal transfers in kind were included in income and valued at their cost to the government, the income share of those with money incomes under $5,000 in 1972 would have increased from 4.1 percent to 5.9 percent of total income when the transfers are valued at their cost. (1)

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(1) It is, of course, doubtful that in kind-benefits are worth as much to the recipients as their dollar cost to the government. Given the choice, a family would prefer to have a dollar to spend as it wishes than a dollar restricted to a specific use such as housing or medical care.

Table 6

Percent Distribution of Family Income Before and After Income In Kind, 1973

Income class	Money income	Income in kind (1)	Money income plus income in kind
Under $5,000	4.1	55.3	5.9
$ 5,000- 9,999	16.0	30.1	16.5
10,000-14,999	25.3	8.8	24.8
15,000-24,999	33.9	5.9	32.9
25,000 & over	20.7	0	19.9
Total	100.00	100.00	100.00

Source: Figures are estimated from Edward R. Fried and others, Setting National Priorities, The 1974 Budget (The Brookings Institution, 1973), Chapter 4; Barry M. Blechman and others, Setting National Priorities, The 1975 Budget (The Brookings Institution, 1974), Chapter 7; and Henry J. Aaron, Shelter and Subsidies, Who Benefits from Federal Housing Policies? (The Brookings Institution, 1972), Chapters 7,8,9. Details may not add to totals because of rounding.

(1) Income in kind includes food, health, housing, higher education, and child care programs.

Cash transfers have also increased rapidly in recent years - from $20.6 billion in fiscal year 1960 (or 4.2 percent of GNP) to $98.2 billion in fiscal year 1975 (6.8 percent of the GNP). The major growth has been in cash benefits to retired and disabled persons - social security, veterans' pensions, retirement programs for civilian and military employees of the government, and so forth. Indeed, payments under retirement and disability programs account for nearly 90 percent of the federal government's cash transfers to individuals. (Recipients of these benefits are primarily elderly, although some of them are survivors of deceased workers or younger disabled workers). The remaining 10 percent goes mainly to impoverished families with children (mostly headed by a woman) and to experienced workers who are unemployed. There is no general income support for poor people who do not fall into one of these specified categories; nor is there assistance for new entrants to the labor force unable to find work.

Cash transfers go primarily to people in the lowest two-fifths of the income distribution and, in principle, are counted in the CPS income statistics. Hence, one would have expected the growth of transfers to have had an equalizing effect on the distribution of family income. However, the impact of transfer payment increases on the distribution of income is partly masked by the fact that such income is substantially underreported in the Census income statistics. Indeed, only 79 percent of the transfers known to be paid out by the government are reported as income by respondents. (More than 97 percent of wages and salaries are reported). For 1973, the Census Bureau estimates that about 89 percent of income from social security was reported in the CPS. However, only 75 percent of the public assistance amount and 58 percent of unemployment insurance and other transfer amounts were reported. (1) A more accurate picture of the impact of transfers on the distribution of income can be obtained by computing transfer payments income for a sample of families on the basis of their income and demographic characteristics, as well as the eligibility rules and participation rates of the various programs. This type of estimate reveals that "in reality" federal transfers had a substantial equalizing effect on the distribution of income in 1972. The lowest 40 percent of family units received only 8.3 percent of income before transfers, but 13.8 percent of income after transfers. (2)

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(1) See U.S. Bureau of the Census, Current Population Reports, Series P-60, N° 97, "Money Income in 1973 of Families and Persons in the United States" (1975), Table A-8, p. 180.

(2) Derived from Edward R. Fried and others, Setting National Priorities, the 1974 Budget (The Brookings Institution, 1973) p. 50. The distribution of income before and after taxes and transfers is shown in Table 12.

In addition to underreporting, there are several reasons why the large increase in transfers might not have brought about a more visible effect on the distribution of income over time. One is that the equalizing effect of transfer payments may be offset by the opposite change in the distribution of earned income. Another is that transfer payments may to a large extent be replacing earnings, especially of older workers. As social security and other retirement benefits have expanded, the average retirement age has declined. In 1950, 46 percent of all men aged 65 and over were in the labor force; by 1960 the percentage had dropped to 33 percent and by 1972 to 24 percent. Thus much of the effect of the retirement programs has apparently been to replace the earnings of older workers with transfer payments without affecting their position in the income distribution.

Another offsetting factor may be the increase in the proportion of people at all ages who head their own households, an increase that, in turn, may be partly attributable to the growth of transfer payments. As may be seen in Table 7 the proportion of people who are either family heads or living alone has increased markedly for both sexes and at all age levels. Young people move out of the parental household sooner, old people are more likely to live alone rather than with their children, and women - especially black women - are more likely to be family heads or living alone than they were two decades ago. These phenomena may simply reflect a change in customs or preferences about living arrangements, but the change has clearly been facilitated by increases in income - more people can afford the luxury of living apart from their relatives. The growth in transfer payments to retired persons has permitted many older people to maintain separate households, albeit often at low income levels, rather than being absorbed into higher income households. There is dispute over whether the existence of welfare payments for women with children and no husband has caused the break-up of husband-wife families and the increase in female headed households, but it is certainly clear that the growth of such payments has made it easier for women to maintain separate households. Thus, the equalization that might have been expected from increases in transfer payments may have been largely offset by the increase in households that has simultaneously occurred.

The United States Tax System

Compared with taxes in other industralised countries, United States taxes impose a comparatively light burden on the economy. Because different levels of government perform widely differing functions in different countries, it is necessary to combine all receipts - federal, state, and local - when comparing tax burdens among countries. On this basis, total taxes amounted to 28 percent of the gross national product of the United States in 1961. In the same period, receipts in Denmark, Norway, the Netherlands, and Sweden exceeded 40 percent of GNP, and in four other countries the total ranged between 35 and 40 percent of GNP. Taxes as a percentage of GNP for the United States and fourteen other countries are shown in Table 8.

Table 7

Heads of Families or Individuals Living Alone as a Percentage of the Population, Selected Years 1950-1970

Sex, race, and age	1950	1960	1970
All males			
14-24	15	18	19
25-64	80	87	90
65 +	76	83	86
White			
14-24	15	18	20
25-64	82	88	91
65 +	76	83	87
Nonwhite			
14-24	12	13	24
25-64	69	76	81
65 +	75	79	82
All females			
14-24	1	2	5
25-64	11	13	16
65 +	32	36	42
White			
14-24	1	2	4
25-64	10	12	14
65 +	31	36	42
Nonwhite			
14-24	2	4	11
25-64	19	23	30
65 +	37	41	47

Sources: U.S. Bureau of the Census, U.S. Census of the Population, 1950, Vol.IV, Special Reports, Part 2, Chapter D, Marital Status (1953, Tables 1 and 2; U.S. Bureau of the Census, U.S. Census of the Population, 1960, Subject Reports, Persons by Family Characteristics, Final Report, PC(2) 4B 1964, Table 2; and U.S. Bureau of the Census, U.S. Census of the Population, 1970, Subject Reports, Persons by Family Characteristics, Final Report PC(2) 4B (1973), Table 2.

Table 8

Total Tax Revenue as a Percentage of Gross National Product, Selected Countries, 1971

Country	Taxes as percent of gross national product	Country	Taxes as percent of gross national product
Denmark	44	Germany	34
Netherlands	42	Canada	32
Sweden	42	Italy	31
Norway	42	United States	28
Austria	37	Switzerland	24
United Kingdom	36	Japan	20
France	36	Spain	20
Belgium	35		

Source: Organisation for Economic Cooperation and Development, *Revenue Statistics of OECD Countries*, 1965-71 (Paris), Table 1a.

In 1973 about 64 percent of all United States tax revenue was collected by the federal government and the remainder was received by state and local governments. As may be seen in Table 9, the taxes used by the different levels of government differ greatly. At the federal level, individual and corporate income taxes accounted for 62 percent of total receipts and social security and other payroll taxes accounted for another 28 percent. The remaining 10 percent came from customs duties, estate and gift taxes, and excises. On the other hand, state and local governments rely heavily on sales and property taxes which accounted for about two-thirds of their total 1973 collections. Direct taxes on individual and corporate incomes amounted to only about 18 percent of total state-local taxes.

Distribution of tax burdens

While good information is available on total tax collections, definitive data are lacking on how tax burdens are distributed among families and persons. In large measure this is due to our lack of knowledge of whose real income is ultimately reduced by the tax (the "incidence" of the tax). The person who writes the check to the government for the tax may not be the one who really bears the burden. Is the tax on property borne by the landlord or does he pass it on the tenant through higher rent? Is a tax on corporate profits borne by stockholders, is it passed on to consumers in the form of higher prices, or is it borne by owners of capital?

The final incidence of general sales taxes and income taxes is fairly clear. In general, the burden of personal income taxes is borne directly by the individual taxpayers. The personal income tax is progressive, despite numerous provisions that benefit mainly high-income persons. General sales taxes are borne by consumers in proportion to their expenditures. Since low-income persons spend the highest proportion of their incomes on consumption, sales taxes are regressive.

With respect to corporate income taxes and property taxes, however, there is considerable disagreement as to the ultimate incidence. Opinion is divided on how the burden of the property tax is shared between landlords and tenants, and how the burden of the corporate tax is shared between owners of corporations and consumers of their products. To the extent that the corporate tax falls on owners of capital, it is progressive, since ownership of capital is concentrated among upper-income groups. To the extent that it falls on consumers, it is regressive. Similarly, the property tax may be progressive or regressive depending on whether its burden falls mainly on landlords and homeowners or on tenants.

The most comprehensive study of the overall distribution of United States tax burdens is the recently completed work by Pechman and Okner. (1)

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(1) Joseph A. Pechman and Benjamin A. Okner, Who Bears the Tax Burden? (The Brookings Institution, 1974)

Table 9

Total United States Taxes by Source and Level of Government, 1973

(Amounts in millions)

Source	Amount			Percentage distribution		
	Federal	State-local	Total	Federal	State-local	Total
Individual income	$114.1	$ 19.0	$133.1	43.5	13.8	33.2
Corporate income	43.7	6.1	49.8	16.6	4.4	12.4
Property	--	47.2	47.2	--	34.2	11.8
Sales and excises	16.6	43.9	60.5	6.3	31.8	15.1
Payroll	79.5	11.7	91.2	30.3	8.5	22.8
All other(1)	8.6	10.7	18.7	3.3	7.3	4.7
Total	$262.5	$138.0	$400.5	100.0	100.0	100.0

Source: Derived from U.S. Department of Commerce, *Survey of Current Business*, Vol. 54 (July 1974), Tables 3.1 and 3.3.

Note: State-local receipts exclude federal grants-in aid and all nontax receipts. Federal tax refunds are netted against receipts. Details may not add to totals because of rounding.

(1) Includes gift, estate, and death taxes; federal customs duties; state-local motor vehicle licenses; and miscellaneous tax receipts.

In their study for 1966, they found that regardless of what incidence assumptions are used, the overall tax burden in the United States is proportional for most families and individuals. Only those at the very bottom and very top of the income distribution had average effective rates that differed substantially from the overall average. As a result, they concluded that the tax system has a negligible effect on the overall distribution of income in the United States.

Pechman-Okner effective tax rates calculated for 1966 are shown in Tables 10 and 11. These rates were calculated under their most progressive set of incidence variants and assume that (a) one-half of the corporation income tax is borne by corporate stockholders and that half is borne by owners of property in general; and (b) that the total burden of the property tax is borne by owners of property. (1) On these assumptions, as is shown in Table 10, effective rates of tax rise substantially for those in the highest income decile. Also, total state-local tax burdens under these incidence assumptions have a U-shaped pattern, with the highest rates at the bottom and top of the income scale (Table 11). This is in marked contrast to the usual conclusion that state and local tax burdens are regressive throughout the income scale.

Combined Effect of Taxes and Transfers

It is difficult to estimate the net effect of the overall tax and transfer systems in the United States because the necessary statistics for doing so do not exist. Lacking those, we have used a combination of available information to produce a partial answer to the question of how government taxes and transfers affect the distribution of income.

Total taxes in 1972 amounted to $353.5 billion, and a reasonable estimate of total transfers is $77.7 billion. (2) Individual and corporation income and property taxes accounted for about 58 percent of total collections and were probably slightly progressive. The remainder - sales and excise taxes and payroll taxes - were regressive. In total, the best estimate is that the overall tax system was neutral - or very slightly progressive - in its effect on the before-tax distribution of income. On the other hand, what we know about the distribution of transfer payments suggests that they were progressive (i.e., favoring the poor). The expected net effect of the two sides of the tax and transfer system, therefore, would be towards income equalization because of the effect of the transfer system.

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(1) It was assumed that personal income taxes are borne by individual taxpayers; that sales and excise taxes fall on consumers; and that payroll taxes are paid by earners.

(2) This includes old-age, survivors and disability insurance; unemployment and workmen's compensation; public and general assistance (welfare); veterans' benefits and military. Estimate derived from U.S. Department of Commerce, Survey of Current Business, Vol. 54 (July 1974), Table 39.

Table 10

Effective Rates of Federal, State, and Local Taxes, by Type of Tax, Most Progressive Incidence Assumptions, by Population Decile, 1966

(Percent)

Population decile	Individual income tax	Corporation income tax	Property tax	Sales and excise tax	Payroll taxes	Personal property and motor vehicle taxes	Total taxes
First (1)	1.1	1.7	2.1	8.9	2.6	0.4	16.8
Second	2.3	2.1	2.6	7.8	3.8	0.4	18.9
Third	4.0	2.2	2.6	7.1	5.4	0.4	21.7
Fourth	5.4	1.9	2.1	6.7	6.1	0.4	22.6
Fifth	6.3	1.7	1.8	6.4	6.3	0.3	22.8
Sixth	7.0	1.5	1.6	6.1	6.2	0.3	22.7
Seventh	7.5	1.6	1.7	5.7	5.8	0.3	22.7
Eighth	8.3	1.8	1.8	5.5	5.4	0.3	23.1
Ninth	8.8	2.2	2.2	5.0	4.8	0.3	23.3
Tenth	11.4	8.1	5.1	3.2	2.2	0.2	30.1
All deciles (2)	8.5	3.9	3.0	5.1	4.4	0.3	25.2

Source: Pechman and Okner, *Who Bears the Tax Burden?*, Table 4-9, p. 61.

(1) Includes only units in the sixth to tenth percentiles.

(2) Includes negative incomes not shown separately.

Table 11

Effective Rates of Federal and State-local Taxes
Most Progressive Incidence Assumptions, by Population Decile, 1966

(percent)

Population decile	Federal	State-local	Total
First(1)	7.8	9.1	16.8
Second	10.2	8.6	18.9
Third	13.5	8.2	21.7
Fourth	15.1	7.5	22.6
Fifth	15.9	6.9	22.8
Sixth	16.1	6.6	22.7
Seventh	16.2	6.5	22.7
Eighth	16.6	6.5	23.1
Ninth	16.7	6.6	23.3
Tenth	21.1	9.0	30.1
All deciles(2)	17.6	7.6	25.2

Source: Pechman and Okner, Who Bears the Tax Burden?, Table 4-11, p. 64.

(1) Includes only units in the sixth to tenth percentiles.

(2) Includes negative incomes not shown separately.

The data shown in Table 12 confirm this expectation. In preparing the table it was impossible to include the effect of the total tax system. Only the federal individual income and payroll taxes - which accounted for close to half of 1972 tax collections at all levels - are included.

For the population as a whole, payroll and income taxes were slightly progressive. Thus, while the bottom quintile received 1.7 percent of total income before taxes and transfers(1) they paid only 1.1 percent of tax, and their share of income after tax increased slightly to 1.8 percent. At the other end of the income scale, the top quintile's share of income after tax dropped from 53.1 percent before taxes and transfers to 51.9 percent after taxes. However, the really large distributional shift is seen only after transfers are taken into account. Those in the bottom quintile before taxes and transfers received 40.2 percent of the transfers and increased their share of income after taxes and transfers to 6.3 percent. Stated somewhat differently, the bottom quintile's share of income increased net by 4.6 percentage points; of the total, 0.1 percentage point was the result of the tax system, and 4.5 percentage points resulted from the cash transfer system. Similar results were found throughout the table - especially for the aged who received more than 53 percent of total cash transfers in 1972. While the federal individual income and payroll taxes play some role in redistributing before-tax income, it is a small one. The real income redistributor in the United States appears to be the transfer system. But even so, the distribution of income still appears quite unequal. While the share of the bottom quintile increased from 1.7 percent to 6.3 percent, those in the top quintile still received nearly half the income after direct federal taxes and transfers in 1972.

3. The Impact of Education on the Distribution of Income

In the last 20 to 25 years educational attainment (years of school completed) has become more equal in the United States, while income inequality has remained about the same and, indeed, the distribution of male earnings has become more unequal. This apparent paradox demands an explanation especially since further equalization of education is often proposed as a means of mitigating income inequality in the future.

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(1) This differs from the proportion shown in Table 1 because the CPS income concept includes money transfer payments.

Table 12

Combined Effect of Federal Individual Income and Payroll Taxes and Transfer Payments on the Distribution of Income, 1972

Population category and income quintile	Percentage distribution				
	Total income before taxes and transfers	Total individual income and payroll taxes paid	Total income after income and payroll taxes	Cash transfers received (1)	Total income after taxes and transfers
Total population					
Lowest 20	1.7	1.1	1.8	40.2	6.3
20-40	6.6	5.0	7.0	26.8	9.1
40-60	14.5	13.3	14.8	13.1	14.6
60-80	24.1	22.8	24.4	10.3	22.8
80-100	53.1	57.9	51.9	9.6	47.1
Total	100.0	100.0	100.0	100.0	100.0
Sixty-five and over					
Lowest 20	0.7	0.4	0.8	27.6	4.0
20-40	1.3	0.7	1.4	15.4	2.9
40-60	1.5	1.2	1.5	4.6	1.9
60-80	1.8	1.7	1.8	3.1	1.9
80-100	3.0	2.6	3.0	2.7	3.0
Total	8.2	6.5	8.6	53.4	13.7
Under sixty-five					
Lowest 20	1.0	0.7	1.0	12.6	2.4
20-40	5.4	4.2	5.6	11.3	6.2
40-60	13.0	12.1	13.3	8.5	12.7
60-80	22.4	21.1	22.7	7.2	20.9
80-100	50.1	55.3	48.9	6.9	44.0
Total	91.8	93.4	91.4	46.6	86.3

Source: Edward R. Fried and others, Setting National Priorities, the 1974 Budget (The Brookings Institution, 1973) p. 50. Figures may not add to totals because of rounding.

(1) Includes old-age, survivors, and disability insurance, unemployment and workmen's compensation, public and general assistance (welfare), veterans' benefits, and military retirement pay.

Education and Income

The educational attainment of the United States population is high and has been rising steadily for many years. In 1950 about half of all 25-29 year old men had completed high school (12 years of schooling) and about 10 percent had completed four or more years of college. By 1974, 83 percent of the men in this age group were completing high school and 24 percent had at least four years of college. (1)

The result of these changes has been a gradual equalization of education, as may be seen in Table 13. In 1950 the bottom 20 percent of the adult male population (in **terms of school years**) had 7.7 percent of total schooling. By 1970 this percentage had risen to 9.9 percent for the adult male population as a whole and to 12.8 percent for men aged 25-29.

On the average, people with higher levels of education have higher incomes. In 1973 the mean annual income of males aged 35-44 with eight years of schooling was $9,486; for those with four years of high school it was $12,045; for those with four or more years of college it was $19,771. (2) Most of the difference is attributable to the fact that workers with higher levels of education earn more, although property incomes are also higher for those with more education.

Human capital theory attributes the higher earnings of the better educated in large part to their greater productivity - viewing much of the increased income as a return on productivity - enhancing investment in education. If this view is correct one would expect, other things being equal, that increased investment in human capital would lower the rate of return. In particular, one would expect that substantial increases in the proportion of highly educated people - such as have occurred in recent years in the United States - would increase competition for jobs requiring higher education levels and lower the wages these jobs command, while at the same time reducing the competition for jobs requiring less skill and increasing the wages paid for these jobs.

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(1) Sources: Derived from U.S. Bureau of the Census, U.S. Census of the Population, 1950, Vol. IV, Special Reports, Part 5, Chapter B, Education (1953), Table 7; U.S. Bureau of the Census, Current Population Reports, Series P-20, N°.274, "Educational Attainment in the United States: March 1973 and March 1974" (1974), Table 1.

(2) U.S. Bureau of the Census, Current Population Reports, Series P-60, N° 97, "Money Income in 1973 of Familes and Persons in the United States" (1975), table 58.

Table 13

Distribution of Total Schooling by Education Quintiles for Males Aged 25 and over and 25-29, 1950 and 1970

Population group	Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%	Total
			1950			
Males 25 & over						
Total:	7.7	16.2	18.7	25.0	32.0	100.0
White	9.7	15.6	18.5	24.8	31.4	100.0
Nonwhite	3.6	12.4	19.0	25.9	39.0	100.0
Males 25-29						
Total:	10.5	16.7	21.3	22.5	29.0	100.0
White	11.4	17.0	21.3	22.0	28.3	100.0
Nonwhite	6.6	14.8	20.2	25.6	32.7	100.0
			1970			
Males 25 & over						
Total:	9.9	16.3	21.3	22.7	29.9	100.0
White	10.4	16.3	21.3	22.5	29.5	100.0
Nonwhite	6.1	15.0	20.8	26.5	31.7	100.0
Males 25-29						
Total:	12.8	18.9	19.4	21.6	27.4	100.0
White	13.0	18.9	19.1	22.0	27.0	100.0
Nonwhite	11.6	18.6	21.6	22.1	26.1	100.0

Sources: Calculated from U.S. Bureau of the Census, *U.S. Census of the Population*, 1950, Vol.II, *Characteristics of the Population*, Part 1, U.S. Summary (1953), Table 115 and *Census of the Population*, 1970, Vol.I, *Characteristics of the Population*, Part 1, Section 2, U.S. Summary (1963), Table 199.

The narrowing of earnings differentials among persons with various levels of education that one might have expected in the 1950s and 1960s did not occur. In 1960, for example, men aged 35-44 with four years of college had 1.91 times the median earnings of those with only eight years of schooling; in 1970 the comparable ratio was 1.92. (1) Table 14 shows income ratios by education for the same age group for several years between 1950 and 1973. The differentials among education levels appear to have widened slightly. This is good news for anyone recommending that a particular person enhance his income by obtaining more education, but it should give pause to those who contend that increasing the proportion of young people finishing high school and college will equalize distribution of income in the future.

Alternative Explanations

The fact that income differentials by education failed to narrow as the proportion of highly educated people increased is something of a mystery and demands an explanation. At least three explanations might be offered. First, technology may be changing in such a way that the demand for employees with skills acquired in education is shifting upward at about the same rate as the supply.

Second, labor markets may not actually work the way human capital theorists have assumed they do. In recent years several alternative models of labor markets have been advanced, partly in an effort to explain why the equalization of education has not resulted in a more equal distribution of earnings. Thurow and Lucas, for example, suggest a job competition view of labor markets in place of the traditional wage competition view. (2) In their model the characteristics of jobs are considered fixed and employers choose among applicants for particular types of jobs in a way that will minimize the cost of training people to do those jobs. What it costs to train a particular worker depends

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(1) U.S. Bureau of the Census, U.S. Census of the Population, 1960, Subject Reports, Educational Attainment, Final Report PC(2) 5B (1963), Table 6 and U.S. Census of the Population, 1970, Subject Reports, Educational Attainment, Final Report PC(2) 5B (1973), Table 7.

(2) Lester C. Thurow and Robert E.B. Lucas, The American Distribution of Income: A Structural Problem, U.S. Joint Economic Committee (March 17, 1972).

Table 14

Ratio of Median Income of Persons with Various Levels of Education to Median of Those with Eighth Grade Level, Males Aged 35-44, Selected Years 1950-1973

Education Level	1950	1960	1970	1973
High school				
1-3	1.13	1.15	1.13	1.10
4	1.26	1.29	1.27	1.37
College				
1-3	1.41	1.49	1.49	1.55
4+	1.83			
4		1.91	1.92	2.04
5+		2.00	2.05	2.17

Sources: Derived from U.S. Bureau of the Census, U.S. Census of the Population, 1950, Vol.IV, Special Reports, Part 5, Chapter B, Education (1953), Table 13; U.S. Bureau of the Census, U.S. Census of the Population, 1960, Subject Reports, Educational Attainment, Final Report PC(2)5B (1963), Table 6; and U.S. Bureau of the Census, Current Population Reports, Series P-60, No.97, "Money Income in 1973 of Familes and Persons in the United States" (1975), Table 58.

on his personal characteristics, including education. Workers are conceived of as forming a national labor queue based on what it would cost employers to train them. Those up front have low training costs and are hired first; those at the back have higher training costs and are hired last, if at all. In an increase in college-trained workers occurs, they do not compete with each other for jobs that require college training and lower the wages paid for those jobs. Rather, college-trained workers are forced back further in the queue and they end up with jobs that would otherwise have gone to workers with less education. College-trained workers may end up with lower average wages, but so may high school-trained workers who are forced further back in the queue and left with even worse jobs. Differences in average wages between college and high school level workers depend on several factors, but there is no reason to expect the difference to narrow when the ratio of college to high school workers increases. Nor does the difference in these average incomes provide any clue to the increase in total product associated with sending an additional student to college.

While education may lower the cost of producing a given output by lowing training costs in the Thurow-Lucas model, in an alternative model sometimes called the screening model, education is assumed to make no contribution to productivity. (1) The combination of ability, motivation, and personal habits that it takes to succeed in education happens to be the same combination that it takes to be a productive worker. Employers know this and use educational credentials as screening devices to help them identify productive workers, even though less costly screening devices could presumably be developed (and would be if employers had to pay for education themselves). In this model differential earnings among education groups yield no information about additional product to be derived from additional education (since education is assumed to add nothing to productivity). Thus the failure of earnings differentials to narrow when education was equalized might be explained by increases in employer requirements for educational credentials in order to reduce their own screening costs.

A third explanation of the failure of earnings differentials to narrow may be that the aspects of education that count in the labor market are not actually being equalized as much as the data on years of schooling would suggest. One might, for example hypothesize that there is a basic number of years of schooling that society expects (indeed requires) everyone to have and which only those who are subnormal intellectually or emotionally fail to attain. Those who do not have the "base level" education are out of the regular labor market and are generally employed only sporadically at marginal jobs. Within the regular labor market,

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(1) See, for example, Kenneth J. Arrow, "Higher Education as a Filter," *Journal of Public Economics*, Vol. 2 (1973)

"base level" education counts for nothing since everybody has it, but earnings are at least partially determined by years of schooling beyond the base level.

In Table 15 the base level for young adults in 1950 is assumed to be eight years of schooling - only 15 percent of males aged 25-29 had less than that amount. By 1970 it is assumed to be ten years of schooling - a level attained by all but 14 percent of the 25-29 year old males. When one compares the proportion of persons with more than a given number of years of schooling beyond the base level it is clear that the equalization of education between 1950 and 1970 occurred close to the base level and was mainly associated with the big increase in high school graduation. Indeed, twelve years of schooling could well become a new base level by 1980. At the high end of the educational attainment scale there has been little equalization. The proportion of young men with five or more years of education beyond the assumed base levels increased only from 21 to 23 percent in the past two decades and the proportion with seven or more years beyond the base levels actually declined. It may be that the human capital model of the labor market is applicable mainly at the high end of the education scale, where stretching out rather than equalization has occurred, and that alternative models fit better at the lower end.

Whatever the merits of these hypotheses, some more recent data suggest that the decline in the relative earnings of recent college graduates, expected in the sixties is actually occurring in the 1970s and that the delay may have been attributable to the fact that such a large fraction of the college graduates of the 1960s flowed into graduate and professional schools and did not hit the labor market immediately. (1) It is too soon to tell, but if the drop in relative earnings of highly trained people does continue it will be somewhat harder to use education as a tool for enhancing social mobility. It will be good news, however, for those who see education as a way of narrowing disparities in income.

Black-White Differentials

Recent trends in black-white differentials are less mystifying, at least in the superficial sense that both education and earnings differentials between the two groups are narrowing, which is what human capital theory would lead one to expect. Blacks lagged far behind whites in years of school completed until fairly recently. But as may be seen in Table 16 the gap has been closing rapidly for the younger age groups.

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(1) Richard B. Freeman, "Overinvesting in College Training", Harvard Institute of Economic Research, Discussion Paper N° 371, processed, July 1974.

Table 15

Proportion of Males 25 to 29 Years Old Completing Years of School Beyond the Base Level (1), 1950 and 1970

Year	Number of school years beyond base level						
	1+	2+	3+	4+	5+	6+	7+
1950	72.6	65.9	57.3	50.5	20.6	16.8	12.4
1970	79.6	74.2	36.1	29.6	23.0	19.4	9.4

Sources: U.S. Bureau of the Census, Census of the Population, 1950, Vol.II, Characteristics of the Population, Part 1, U.S. Summary (1953) Table 115; and U.S. Bureau of the Census, Census of the Population, 1970, Vol.I, Characteristics of the Population, Part 1, U.S. Summary, Section 2 (1973), Table 199.

(1) Base level of education is assumed to be eight years of schooling in 1950 and ten years of schooling in 1970.

Table 16

Median Years of School completed for Males, by age and race, selected years 1950-74

Age	White				Nonwhite (1)			
	1950	1960	1970	1974	1950	1960	1970	1974
25+	9.3	10.6	12.1	12.4	6.5	7.9	9.4	11.0
25-29	12.1	12.4	12.7	12.9	8.4	10.5	12.1	12.6
30-34	11.9	12.2	12.6	12.8	7.9	9.7	11.7	12.5
35-44	10.3	12.1	12.4	12.6	6.8	8.6	10.6	12.1
45-54	8.8	10.3	12.2	12.4	5.8	7.1	8.9	10.0
55-64	8.4	8.7	10.6	12.0	4.9	5.8	7.3	8.2
65-74	8.2	8.3	8.8	9.4	4.0	4.6	5.8	5.9
75+	8.1	8.1	8.4	8.6	3.1	3.9	5.1	5.4

Sources: Derived from U.S. Bureau of the Census, U.S. Census of the Population, 1960, Vol.I, Characteristics of the Population, Part 1, U.S. Summary (1964), Table 173; U.S. Bureau of the Census, Census of the Population, 1970, Vol.I Part 1, U.S. Summary, Section 2 (1973), Table 199; and U.S. Bureau of the Census, Current Population Reports, Series P-20, No.273 "Educational Attainment in the United States: March 1973 and March 1974" (1974), Table 1.

(1) Includes only Negroes.

Until recently, income statistics suggested that the lower education levels of blacks in the past may have reflected decisions on their part not to invest in additional education that had little pay-off for them. Rates of return on high school and college education for blacks were low compared with those of whites; the income disparities between blacks and whites were greater at higher than at lower education levels. This phenomenon was apparently attributable both to the poorer quality of black education and to greater discrimination against blacks in white collar and professional occupations than at lower skill levels. In recent years, however, the most rapid gains for blacks have been for the young and the well-educated. Finishing high school and college now appears to pay off as well for blacks as for whites. The shift may be partly due to increases in the resources devoted to black education and partly to public and private efforts to reduce discrimination in hiring.

Two recent studies confirm this general impression and lend at least moderate support to the contention that increases in education can be effective in changing the relative position of disadvantaged groups. In a recent paper Vroman examines changes in the ratio of black to white earnings for men in various age groups over the last fifteen years. (1)

He finds changes in relative earnings significantly related to shifts in education, especially for the young. Increases in black-white earnings ratios attributable to education changes, however, have been partially offset by changes in industrial composition unfavorable to blacks - the declining importance of manufacturing and transportation where blacks have fared relatively well and the rise of industries in which they have fared relatively badly.

Finis Welch takes a very different approach utilizing cross-sectional data. (2) He tries to identify both the effect of education on wage levels of blacks and whites and the effect of education on the probability of having a job at all. He finds that the latter effect is more important for blacks, while for whites the predominant effect of education is on wage levels not on their chances of being employed. More surprisingly, Welch finds that for recent entrants to the labor force the overall effect of education on male earnings is greater for blacks than whites while the opposite is true of those with longer labor force experience. He hypothesizes that these shifts reflect narrowing of disparities in the quality of black and white education.

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(1) Wayne Vroman, "Recent Changes in the Relative Earnings of Black Men" (University of Maryland, processed, May 1974).

(2) Finis Welch, Black-White Differences in Returns to Schooling," The American Economic Review, Vol. 63 (1963).

4. The Policy Context

Inequality as such has never been a major political issue in the United States. There has been concern with poverty, with improving the lot of particular groups (blacks, Indians, migrant workers, small farmers, etc.) and with curbing the power of big business or big labor unions. But the United States has never had a significant long-lasting political movement whose objective was explicitly to equalize the distribution of income or wealth.

This absence of egalitarianism may be related to the fact that there was no American aristocracy and no rigidly defined upper class for lower income groups to revolt against. Although the legacy of slavery and ill-treatment of the Indians left a visibly down-trodden under class with no real counterpart in Europe, these "underdog" groups have always comprised a small proportion of the population which, at least until recently, lacked effective political power. Moreover, fairly fluid upward mobility and the "Great American Dream" kept the mass of the population - indeed, even the poor - from active advocacy of egalitarian policies. When every man aspires to be a millionaire there is little enthusiasm for forcing millionaires to share what they have.

There is also no Marxist or socialist tradition of any political significance in the United States. Although there is popular suspicion of big business, it is accompanied by even greater suspicion of big government and public ownership of industrial concerns. Public ownership or even regulation of railroads, airlines, city bus services, or electric power generation is generally seen as a regrettable response to a failure of the private market rather than as a desirable step toward a more egalitarian society. Even explicitly egalitarian policies (such as subsidized health care for the poor) have often been designed to preserve as much of the free market as possible and to avoid delivery of services directly by public agencies.

On the other hand there is strong continuing American political concern for assisting the poor and relieving human misery, especially for protecting people against misfortunes that are not their own fault, such as income loss due to old age, illness, widowhood, unemployment, or obsolescence of their skills. This concern found expression at the national level in two major waves of legislation: the New Deal in the 1930s and the War on Poverty in the 1960s. Besides immediate relief for the victims of the Great Depression, the major legacy of the New Deal period was a system of cash transfers to assist particular categories of needy people: social security for the aged, for worker's survivors, and (later) for the disabled; unemployment insurance; and federal funds for state-run public assistance for some categories of poor people, especially mothers with children but no husband. There was little federal emphasis in the New Deal period on transfers in kind or on human investment programs. Education was considered the responsibility of states and localities, not the federal government, and unemployment was clearly the result of world-wide depression, not of the inadequate skills of the unemployed.

By the 1960s the emphasis had changed. The cash transfer programs begun in the 1930s had been expanded and some in-kind benefits (notably medical benefits for the poor and the aged) were added. But the major emphasis of the War on Poverty was on human investment programs, such as compensatory education designed to enhance the cognitive skills of children from low-income families and manpower training programs designed to increase the earning power of low-income workers. The amount of money devoted to these programs was never large, but they were launched with much fanfare and high hopes that they would bring dramatic improvements in the lives of the poor.

The War on Poverty happened to coincide with new efforts to measure the benefits of government and evaluate their effectiveness. The new human investment programs were subjected to intensive analysis and evaluation both by the government itself and the academic community. In general, the results were disappointing. A few compensatory education projects produced significant gains in test scores of children in school, but most did not. Evaluation of the Head Start program for pre-school children showed substantial average test-score increases for the children in the programs, but these gains faded rapidly as the children moved into regular school classes. After a year or two the test scores of the Head Start children were indistinguishable from those of similar children who had not been through the program. Similarly, most of the evaluations of manpower training programs failed to provide convincing evidence that trainees had made significant gains in income or employment that could be attributed to the programs.

Discouragement with the measurable results of human investment programs was reinforced by several studies of the impact of school resources on the performance of children, the best known of which was the so-called Coleman Report (1). In general these studies showed strong correlations between family background factors and children's performance in school and failed to provide evidence that increasing the resources devoted to schooling would enhance children's measurable cognitive skills.

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(1) James S. Coleman and others, Equality of Educational Opportunity, U.S. Department of Health, Education, and Welfare, Office of Education, (1966).

The belief that education would be an effective equalizer of incomes was further undermined by publication of the Jencks book which attempted to show that neither education nor family background nor native ability accounted for a large part of the variance in individual incomes and argued that effective equalization of incomes could only come from direct public intervention in the determination of wages and salaries. (1)

Since the late 1960s there has been considerable debate over appropriate federal policy toward income inequality, but hardly any legislative action. Federal spending under existing transfer programs - both cash and in-kind - has grown rapidly as the eligible population increased and benefits were raised. Some of the human investment programs enacted under the War on Poverty have been consolidated into block grants in an effort to give state and local authorities more control over the disposition of federal money. Funding for this type of activity has remained roughly constant in dollar terms, but has declined in real terms and as a percent of the federal budget. Initiatives of the Nixon Administration to put a floor under the income of families with children and to provide wide health insurance coverage were rejected by the Congress - in part because the conservatives thought the proposals too generous and the liberals thought them not generous enough.

In the next few years three strategies for income equalization seem likely to evoke substantial political and intellectual support. The first is reform of the federal tax system to make it more progressive at high income levels and to ease the burden on low-income taxpayers. Closing "loop holes" in the federal individual and corporate income taxes would raise the effective tax rate on high-income people, many of whom now pay low rates because much of their income comes from sources (for example, capital gains and oil and gas revenues) that receive preferential tax treatment. This will improve the tax structure but will have little effect on the overall distribution of after-tax revenue. Income tax burdens on low-income people could also be reduced, but the most effective way to ease the tax burden on low-income, working families would be to reduce the reliance on payroll taxes to finance the social security system. A second strategy is reform of the cash transfer system to put a floor under the incomes of all-low-income families and individuals. Present debate centers around replacement of the state run assistance programs for impoverished families with children with a federal universal income-related grant, perhaps some form of negative income tax. This would supplement the incomes of low-wage earners and improve the relative position of the poorest families, especially in the South where both welfare benefits and wages are low. The third strategy is expansion of transfers in kind, especially enactment of a national health insurance system. National health insurance might take several forms, but it should clearly replace the existing uneven state-run subsidies for the poor with a national system designed to make comprehensive health benefits available free or at extremely low cost to all low-income families.

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(1) Christopher Jencks and others, Inequality (Basic Books, 1972), Chapter 9.

To some extent the second and third strategies are alternatives. If a generous cash-grant system were enacted, there would be less need for additional transfers in kind, indeed, the cash-grant system might replace present food and housing benefits to the poor. The cash approach has considerable support among liberal politicians and especially among academics, who argue that the poor are the best judges of what they need and that there is no reason to specify that subsidies must be spent for food or housing or any other particular purpose. (Even the strongest advocates of an all-cash approach tend to agree that a separate medical insurance program is necessary). Others argue that it is easier to build political support for transfers in kind and hence, in the long run the poor will be better off if reformers concentrate on enacting a series of generous in-kind transfer programs, including health insurance and expansion of food subsidies and housing allowances. One problem with this strategy, however, is that it is difficult to maintain work incentives when low-income people stand to have a whole series of benefits reduced when their earned income rises.

It is difficult to make a strong case for making equalization of education a major element of any national strategy to equalize income. The experience of the recent past does indicate that increasing the number of years of schooling completed by a particular group in the population can improve the relative income position of that group. The federal government is already putting increased emphasis on student aid programs to enable young people from low-income families to pursue education beyond high school and one might expect this emphasis to continue.

There is little evidence, however, that overall equalization would be enhanced either by general efforts to prolong years of schooling or by increasing expenditures per child (or even per poor child) at the elementary and secondary level. Until new research demonstrates that effective methods are available for enhancing the cognitive skills of low-income children there is unlikely to be much zest for compensatory education as an equalization strategy. There will certainly be pressure to equalize education spending among states or local areas on grounds of fairness, but for the time being elementary and secondary education seems likely to be regarded primarily as a public consumption good to which everyone should have equal access as a matter of fairness rather than as an effective tool for equalizing income.

At the present time the outlook for new policies designed to change the income distribution in the United States can only be described as uncertain. Recession, inflation, and the international oil crisis are dominating the attention of policymakers in Washington. Moreover, enactment of any major new domestic initiative in the next two years would require extraordinary leadership from the President and unusual cooperation from the opposition party, which controls the Congress. It seems unlikely that substantial new programs will be undertaken before the 1976 election. That election, however, may well provide an occasion for debate on important and controversial policies which could affect the income distribution in the future: national health insurance; reform of the welfare system to put a floor under cash income; and reform of the payroll and income taxes to make them more progressive. It would be rash to predict now how that debate will come out.

A Comment on Okner and Rivlin

by

Jacob Mincer

1. Introduction

Okner and Rivlin (henceforth O-R) paint a broad picture of statistical facts about the current U.S. money income distribution and about its changes, or absence of change during the past quarter century. The authors and the audience are well aware of the conceptual differences between the incomplete data on money income measures and the true facts about the real income distribution, so I will not dwell on these differences. But, even if money data were complete, including an imputation of in-kind and non-pecuniary components, questions would still arise about definitions and size of income receiving units, and about the length of time period over which incomes are received. Even if we have to follow the Census definitions of recipient units and annual periods, the premise that comparisons of individual income positions over periods longer than a year are more meaningful suggests that we distinguish individual differences in wage rates from differences in time worked during the year, as the latter is of a more transitory nature. Similarly, comparisons of incomes of young persons who are at low starting levels with incomes of middle aged persons who are at peak earning capacity are misleading as the whole life-cycle income profile may be the same for the two individuals.

My point is that unless the whole life cycle of income and the transitory variation in time spent at work are taken into account, the annual income distribution exaggerates substantially the more basic, persistent features of existing income inequality in society.

The broad statistical facts on the annual income distribution to which the O-R report is restricted are generally familiar and not subject to any major dispute. I will add some details which should help in a modest clarification of the picture.

The role of government is a large and growing one. Its effects on various aspects of the income distribution are inescapable, even if most of them are in the nature of by-products rather than objectives. To my knowledge, there is no integrated overall income distribution policy in the U.S. There are, of course, a variety of governmental laws and programmes involving taxes and transfers, programmes directed at special objectives and groups, but not at the income distribution as a whole. Some of the transfers go to middle and upper income groups, others--presumably a somewhat larger amount--to below median groups. The total (net) effect of redistribution is thus much less than the (gross) sum of its parts. The overall effects of the tax and transfer system, excluding in-kind transfers, are presented by O-R in Table 12. This is a major contribution at least to my knowledge. We should look forward to more complete estimates and to some time-series of them.

It seems to me, as it does to the authors, that discussion of an overall income distribution policy is out of touch with the American political scene, current and past. The "New Deal" of the 30's and the "Great Society" programmes of the 60's were focused on helping low income groups, the unemployed in the 30's and the urban slum dwellers (mainly blacks) in the 60's. Both were anti-poverty policies, both responding to crises, each of a different nature and severity. These ad hoc and typically specific spurts of policy are induced by the condition of the time and swayed by the momentum of public attitudes. As Jencks (1972) bitterly complained, but correctly perceived, the last thing on the public mind is the goal of narrowing the standard deviation in the income distribution--in sharp contrast to the widely shared view that people who are in need through no fault of their own should be helped. As O-R note, equalization of income is not a particularly attractive goal for the masses, so long as aspirations for upward mobility are not unfounded. There is little enthusiasm to force the upper 20 per cent, that is the more articulate segment of what is known as the middle class (how many plutocrats like ourselves realize that they are in the upper 5 per cent?) to give more of their income to the government, unless the matter is extremely urgent. O-R's reference to millionaires is misleading: aspirations to move oneself or the children into the upper 20 per cent are sufficient and not unrealistic; at the same time, soaking the millionaires would make very little difference to the Lorenz Curve.

I shall not discuss the tax and transfer policies beyond the preceding remarks, but I will address myself at greater length to the effects of education on income distribution. I do not find these effects to be mysterious, nor the search for alternative hypotheses necessary. I shall end with a few words about egalitarianism, since O-R often invoke the term taking its meaning for granted, both in a descriptive and normative sense.

2. Facts About Inequality and Poverty

Levels of relative inequality of reported money incomes among families and unrelated individuals are presented in O-R's Table 1 in terms of income shares of quintiles. Such statistics tell us little, unless we have comparisons with past data on the same economy or concurrent data on other economies. In the latter case spatial distribution of the population should be taken into account in the comparison. Inequality within a region in the U.S. is less than total U.S. inequality, so comparisons of the U.S. with the U.K., for example, is less appropriate than with the Common Market as a whole.

Table 1 does show comparisons with past U.S. distributions over a period of 20 years, and the stability is striking. This still does not tell us whether the current level is "normal", "high" or "low", at least by historical standards. Longer term data add some perspective: U.S. income inequality was substantially higher just prior to World War II and, if fragmentary data can be relied upon, had been declining between 1890 and 1930 as well.

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The stability of inequality in the past 25 years masks several trends working in opposite directions. Both the decline in the proportion of intact (husband and wife) families and the increasing splitting of larger households into nuclear units tend to increase inequality. At the same time, the increasing proportion of intact families in which the wife is a second earner contributed to the narrowing of income inequality. These trends are likely to continue as economic growth continues, but family disintegration might be slowed if some of the features of the welfare system, in which only families without fathers receive payments, could be eliminated.

In contrast to the stability and even slight decline in inequality among families there was, according to O-R, a slight increase in inequality among earnings of persons, even when only restricted to males. This is true, if all males (age 16+) are considered, but not if we restrict the distribution to the post-school pre-retirement age groups, say 25-64. The growth in inequality of personal earnings when all age groups are included is due to a growing part-time and intermittent labor force, concentrated mainly in the school age population at one end, and in the retired and semi-retired population at the other end of the age spectrum. In the 18-24 age group college enrollments increased greatly over the past 25 years, but schooling and work have become increasingly simultaneous or alternating. Among the older groups growing pensions and liberalized retirement provisions which allow part-period work without losses in pensions induce more people into retirement and into part-time work after retirement. Thus, even though inequality in the central age groups has not changed, the growing annual variability in hours of work among the young and old increased the aggregate variance of income.

The decline in the poor population, as officially defined by the "poverty line" is portrayed over the period covered in Table 2. How much the "war against poverty" affected the decline in the number of the poor cannot be read from the table. It is clear, however, that rapid economic growth in the 60's had a great deal to do with it. As the income distribution shifted up, the fixed (in price-deflated terms) poverty line left progressively smaller groups below it. To characterize the growing gap between the upward moving mean income and the fixed poverty line as a "growing relative deprivation" of the less numerous poor, is simply to deplore economic growth. Should we recommend negative economic growth for the sake of the adage that misery loves company?

Naturally, if poverty is defined in relative terms, say as the lowest 20 per cent or 10 per cent, the problem will always remain with us to the same extent. To eliminate it, a utopian zero variance of income would be required. (The value of an unattainable objective is that it assures permanence of an ideology which could otherwise be ruined by success.)

We should note that the nature of the low income population, even when defined as a fixed percentage (say 10 per cent) has been changing. It consists, increasingly, of households in which there is no adult worker and, increasingly, the family is headed by a female. Unemployment is, incidentally, a minor factor in poverty.

Disabilities due to old age or illness, and the broken family with dependent children are the major factors. The growth of broken families and of the proportion of children brought up in them is likely to be a cause as well as an effect of impoverishment. This trend is disquieting despite the concurrent decline in overall poverty as defined by the poverty line. The causes of the trend are not well understood. Perverse incentives built into welfare systems may play a part. If so, the urgency of welfare reform is great even at some cost of work disincentives.

3. Effects of Education on Income Distribution

In their discussion of effects of education on income distribution, O-R are puzzled by the fact that inequality of earnings has not narrowed despite the increased educational level and the (modest) narrowing of the educational disparities in years of schooling during the past 25 years. Other things the same, economic theory predicts that increases in educational investments should lower the rate of return on the investment and narrow the income differentials. This did not happen. To explain this puzzle, O-R suggest the possibility that demand for skills may have increased *pari passu* with supply--or put differently, that the growing supply may have been largely a response to growing demands for skills. This is a most reasonable explanation, since technologically-based or capital-based growth implies growth in demand for complementary human skills. It has been shown empirically (Griliches 1969) that human and physical capital are less substitutable among themselves than is unskilled labour with either one of the types of capital. The derived demand implications are consistent with the facts.

This is not to say that rates of return must remain stable forever. They did not--they declined--prior to 1947 for half a century at least, and they may currently resume their decline as the baby-boom crop hits the labour market in full force. Negative feedbacks on enrollments are already visible in U.S. higher education.

But let us return to the alleged puzzle. Though the rate of return did not change by 1970, should not the narrowing of educational attainment itself have an income equalizing effect? The decrease in educational differences was less than 10 per cent, when measured by the standard deviation of years of schooling. (Incidentally, it is important to note that absolute rather than relative differences in schooling should be compared with relative differences in earnings. This is because, at a fixed rate of return, an incremental year of schooling produces a fixed percentage increase in earnings.) The standard deviation in years of schooling declined from 3.70 in 1949 to 3.36 in 1969 among men age 25-64. The contribution of a change in the dispersion of education to a change in earnings inequality can be expressed by:

$$\Delta\sigma(\ln Y) = r.\Delta\sigma(s) \tag{1}$$

where Δ is change, σ is standard deviation, Y is annual earnings, r rate of return, and s years of schooling. Since r was in the neighbourhood of 10 per cent and $\Delta\sigma(s) = .34$, the change should have been $\Delta\sigma(\ln Y) = .034$. For men age 25-64 we actually found that $\sigma(\ln Y)$ declined from .80 in 1949 to .76 in 1969, a difference that would be difficult to detect in quintiles of a Lorenz Curve (see Chiswick-Mincer, 1972)(*).

Put briefly, given a fixed rate of return, the predicted effect of narrowing $\sigma(s)$ was too small to be visible, particularly when measured by shares of quintiles. The puzzle, therefore, disappears. The observed stability can be understood within the confines of economic analysis, so resort to alternative hypotheses which dispense with supply and demand are neither alluring nor necessary.

The unobserved change in income inequality, given change in one of its determinants namely in the distribution of schooling, is only one aspect of the puzzle confronting our authors. If Jencks is to be taken as the ultimate word on the determinants of levels of inequality, there is a more general aspect of the puzzle at hand: Does education affect incomes substantially, or at all? Jencks found that the distribution of schooling explains less than 10 per cent of income inequality among men, and after adding many variables representing family background, ability, and so forth, he could not explain much more than 20 per cent of the variance of income. The unexplained residual (close to 80 per cent) he interpreted as "luck of the income recipient". In this he did not follow the more humble students of economic growth who correctly perceived the residual in their work as a "measure of ignorance" in the field.

My own initial approach (1974) has been to formulate a rudimentary earnings function with a minimum number of variables which I derived from human capital theory. For empirical purposes the formulation reduces to a small equation:

$$\ln Y_t = b_0 + b_1 s + b_2 t + b_3 t^2 + b_4 \ln H + U \qquad (2)$$

Where Y_t are annual earnings during the t^{th} year of work experience

S the person's years of schooling attained

H total hours of work during the year t

Then b_1 is an estimate of the rate of return to schooling, b_2 and b_3 are parameters of growth of earnings with years of experience, themselves a function of mobility and training on the job and of the rate of return on such job investments.

U is the residual which includes variables which are not easily measured, such as individual differences in rates of return, quality of schooling, as well as some measurable variables.

This equation has explained more than a half of the variance of earnings in micro-data. The remaining residual is under a series of investigations which appear to be promising. Jencks got his low explanatory power by unaccountably disregarding the accumulation of

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(*) This calculation is approximate. For details see the reference.

work skills by work experience, as well as the fact that hours and weeks of work differ a great deal among individuals in a given year. His conclusion about the magnitude of "luck" was incorrect, even if we swallow the misnomer. Moreover, the conclusion which many of his readers draw, that equalization of income is both appropriate and rather costless because of the luck factor (read: large residual) is a non-sequitur. Suppose many of the factors determining productivity at a given time are not measurable (or not measured by Jencks). Does it follow that the productivity is not known to the worker and to the employer, and the wage-setting is arbitrary?

Returning to the study of changes in income inequality, this can be done by taking variances of both sides of equation (2). Then the relative income variance is expressed as a function of means, variances and covariances in schooling, work experience, employment during the year, and of parameters such as rates of return embodied in the coefficients of the earnings function. This approach was, indeed, taken by Chiswick and myself in an attempt to explain year-to-year changes in income inequality in the U.S. between 1949 and 1969. The actual and predicted trends were practically nil, but as much as 87 per cent of the year to year fluctuation in inequality was in small part explained by the slight changes in the distribution of schooling and of age (experience), and in large part by the cyclical changes in the variance of hours worked during the year. We also went back to 1939 and found that the strong decline in inequality between 1939 and 1949 was attributable, partly to the change from depression to full employment and partly to a sizable reduction in the rate of return to schooling.

A sensitivity analysis of the data showed that even sizable changes in the distribution of schooling and age have minor effects on changes in inequality compared to effects of changes in rates of return and in variation of hours worked.

I find the other explanations which O-R invoke for the absence of an educational effect on changes in income distribution both unnecessary and without empirical basis. Even on a speculative basis, they are not sufficiently persuasive so as to tempt me to abandon price theory.

The screening hypothesis is a respectable part of information theory, but not a good explanation of life-time educational earnings differentials, as Wiles and others appear to believe (I wonder whether they mean to be autobiographical). If sheepskins tell the truth about worker productivity, there is no reason why employers should raise educational requirements as education spreads. Without concomitant increases in demand, wage differentials would narrow. If education is only a screen, the self-employed would obviously not want to bother with it. Yet they do, and what is more, income differentials by education are just as strong for the self-employed, as they are for employees (Wolpin, 1974).

Even if employers are initially guided by sheepskins, this guide is hardly durable. After a few years of work experience interested parties acquire enough information to supersede the preliminary screening. Otherwise it would be difficult to understand the variety of wage levels and wage progress profiles among which individuals differ even when they have the same sheepskins.

Moreover, the characteristics for which schooling serves as a screen could be discovered by means of direct interviewing and testing more cheaply than by expenditures of many years and tens of thousands of dollars on a lengthy education. Markets for testing would surely spring up if such tremendous savings were possible. Students or their parents would pay for these services even if employers would not initially contribute. Ultimately, these costs would become a part of hiring costs shared by emplo and workers.

4. Notions of Egalitarianism

O-R appear to mean by egalitarianism the goal of equalizing the distribution of income. This is taken for granted throughout the paper until it is defined more explicitly on p.217. The goal is evidently a matter of value, hence the terms "bad," "worse," "dismal" as adjectives in describing various frequency distributions of income. By this same definition O-R claim that American society is characterized by an absence of egalitarianism.

O-R recognize that concern with inequality involves many dimensions: not only income, but social status, political power, access to opportunities, social mobility, freedom of choice, and so forth. Since any two of these dimensions may be in conflict, it is difficult to see how value-laden adjectives can be attached to dimensions of one aspect, disregarding (or overriding?) all others.

The exclusive emphasis on income in egalitarianism is therefore question-begging, and economists who deal with trade-offs ought to be aware of this problem most clearly.

What O-R mean by "absence of egalitarianism" among the general public in America is that equality of incomes receives much less of a priority than equality under the law, equality of opportunity, openness to upward social mobility, and freedom of choice. These goals are among the traditional contents of egalitarianism. In the long run they contribute to maximal individual and social development and minimal poverty. In the short run, relief for the poor and disabled is a continuous public responsibility. How large an income variance all this implies is an interesting, but not primary question.

The switch from the traditional egalitarianism, from the goal of equality of opportunity to the goal of equality of results is widely, and I believe correctly, viewed as a change in which the loss of old forms of equality will be the social cost of acquiring the new ones. The implications of an overriding egalitarianism of results are many and as far reaching as the choice between a market and a centralized economy, since incentives would have to be replaced by some form of command.

Here it should suffice to say that, as economists, we should not judge distributions of income and policies regarding them merely by looking at the second moment of the distribution. That the first moment matters is a truism, despite the recent attempts to debunk it. More importantly, we should think as carefully as possible about the matter of trade-offs in the competing forms and goals of equality, rather than leave it to ideology to provide us with apparently attractive, but misleading solutions. There is plenty of scope for social research to investigate the nature and magnitudes of trade-offs, the effects of various equalization policies in market economies, as well as the nature of equality and inequality produced by centralized economies.

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INEQUALITY AND REDISTRIBUTION POLICY ISSUES

Principles and Swedish Experience

by

Assar Lindbeck

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PREFACE*

The purpose of this paper is to compare alternative methods of (re)distribution policy in "mixed economies". More specifically, the paper deals with the objectives, methods and problems in redistribution policy. Needless to say, the enormous size and complexity of the topic to be discussed implies that I am only able to scratch the surface a little on the various issues.

The main reason for choosing this broad approach is that the potentialities, obstacles and "side effects" of a specific method, such as education or taxation, are more clearly understood if they are compared with the consequences of other methods of redistribution policy. Hopefully, the study can help supply background information for answering questions such as: How far can public authorities and other organizations go on the various roads of redistribution policies in "mixed economies" without running into serious problems?

The chief objective is to highlight principles and general problems. But in order to insert some empirical substance into the exposition, the paper draws heavily on the expzriences of one particular country - Sweden. One reason for choosing Sweden for a case study is that rather ambitious attempts to pursue an income redistribution policy have been made in this country for quite a time, perhaps in particular from the early 1930s, i.e. for about forty years. Thus, Sweden is, in the paper, treated as a kind of "laboratory" for experiments in redistribution policies in mixed economies.

However, four rather specific features of the Swedish society should be kept in mind. One is that the population is fairly homogeneous in terms of race, culture and perhaps also in attitudes and valuations in general. Another feature is that the efficiency of individual firms seems to differ relatively little, partly due to a relatively even (and high) quality of management competence; this means that even the least efficient firms can afford to pay wages quite close to the average level. Thirdly, Sweden has, for about forty years, had just about the same government: a Social-Democratic government, pursuing a fairly "liberal" economic policy combined with rather ambitious "social" policies; moreover, the opposition parties too have been favorable to social and redistribution policies. A fourth feature is that the employees' organizations, which are both highly centralized and strong, in the bargaining process as well as in political life, have been quite willing to cooperate with the government, and frequently also with the employers' associations, in various fields of relevance for redistribution policy, such as labor market policies, educational reforms, and social security legislation - and often also in tax policies and public expenditure programs in general.

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Chapter I

STRATEGIC VARIABLES IN REDISTRIBUTION POLICY

Behind the objectives of (re)distribution policy lie, probably, mainly considerations of economic power, individual welfare, and individual status. The paper will not deal much with status, but instead concentrate on the two other aspects of redistribution policy, i.e. economic power and individual welfare. The emphasis will be on individual welfare.

Perhaps we can conceive of *economic power* as the relative ability of different agents, individuals and institutions, to command the use of economic resources, in the market system as well as in various administrative systems (hierarchies) - including the right and ability to take, and to influence, political and administrative decisions and to "lead" the work of others (superior versus subordinate relations). Thus, economic power reflects an unequal command over economic resources, and/or an "asymmetric" relation between economic agents.

To some extent, economic power is related to the "property rights" of an economic system, i.e. the rights to accumulate, decumulate and manage physical and financial assets (capital). However, it is important to note that the *contents* of property rights, in contrast to the *formal* ownership of assets, are much more restricted today than they were a few decades ago - due to new labor-management relations and new laws regulating the use of property, such as land, buildings and machines; in some cases there are nowadays even regulations concerning inputs, outputs, and prices. Moreover, in the rather highly organized society of today - with considerable social mobility as well as huge accumulated investments in knowledge and skills, "human capital" - the knowledge, skills, abilities, attitudes, and behavior patterns of an individual, and his position in the various private and public hierarchies, are probably as a rule far more important factors for the distribution of economic power in society, than is the formal ownership of physical and financial capital.

The term individual welfare will be used here analogously, in principle, as in utility (preference) theory of household behavior in economics, i.e. as subjectively experienced satisfaction (utility) to be had from the use of scarce resources during a certain period of time. However, in addition to the "traditional" welfare-creating variables in economics - consumption and leisure - a number of additional aspects, less often considered in economic analysis, will also be included, such as leisure activities, health, work efforts, working conditions, the state of the environment, and various other variables that are today often regarded as crucial for the "quality of life".

Thus, it may be useful to discuss redistribution policy against the background of a social preference function, or "social indicator function" (W), that includes as independent variables the array, i.e. the individual availabilities, of a great number of "utility"-creating and power-creating factors for the individuals - giving a social indicator function such as the following:

(1) W = F (array of: consumption of private goods, consumption of public goods, leisure time and leisure activities, work effort, health, natural and man-made environment, wealth, security, individual freedom, personal relations, ability to take and influence political and administrative decisions, etc.).[1]

However, in spite of the broadness, in principle, of the concept of distribution policy, it is probably correct to say that distribution policy in most countries has in practice dealt particularly with considerations of income, consumption and possibly also of wealth, with the emphasis usually on income. Perhaps we could say that income

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[1] More specifically, let us assume that the utility, u^i, of the ith individual depends on the m "endowments" of that individual, $X_1^i, \ldots, X_m^i$: $u^i(X_1^i, \ldots, X_m^i)$, $i = 1, \ldots, N$. Also assume that a given evaluation of the state of the society is expressed by the social indicator function

$$U(u^1,\ldots,u^N) = U[u^1(X_1^1,\ldots,X_m^1),\ldots, u^N(X_1^N,\ldots,X_m^N)] = F(X_1^1,\ldots,X_m^1,\ldots,X_1^N,\ldots,X_m^N) =$$

$$= F(X_1^1,\ldots, X_1^N,\ldots, X_m^1,\ldots, X_m^N),$$

which is, in fact, a function of the same form as equation (1), with the arrays of individual utility-creating endowments as the independent variables.

- sometimes also consumption and wealth - has been treated as a "proxy variable" for (at least some of) the arguments in the social preference function (1). It is therefore quite relevant in an analysis of redistribution policy to put considerable emphasis on these variables.

When discussing the distribution of income in the present paper, I shall make the usual distinction between *factor income*, relevant when discussing the renumeration to the various factors of production - the "functional distribution" of income - and *disposable income*, relevant when discussing the distribution of purchasing power among individuals and organizations.

In a market economy, with markets for commodities, services, credit instruments and factors of production, the distribution of factor incomes may be regarded as determined largely by three circumstances: (1) the distribution of the *ownership* (holdings) of the various factors of production (factor "endowments"); (2) the (real) *returns* on these factors (relative factor prices); and (3) the *capacity utilization* of the factors. The factor income of an economic unit can then simply be regarded as a *product* of these three variables (factor holdings *times* factor returns *times* capacity utilization).

The dichotomy between holdings and returns will be a starting point for our discussions. The capacity utilization of the factors will be discussed at various points in the paper.

The two "classical" factors of production - capital and labor - may perhaps be subdivided as follows: *capital* into natural resources, produced physical assets, and financial assets; and even more important for our purpose, *labor* into pure (homogenous) labor, human capital and natural abilities. Thus, we get the following schematic classification of factors and factor returns:

Factors

(1) natural resources	conventional capital	capital in a wide sense
(2) produced physical assets		
(3) financial assets		
(4) human capital	conventional labor	
(5) natural abilities[1]		
(6) pure labor		labor in a restricted sense

Factor returns

(1) conventional rents	conventional capital income	capital income in a wide sense
(2) profits		
(3) interest income		
(4) return on human capital	conventional labor income	
(5) rents on natural abilities[1]		
(6) pure wages and salaries		labor income in a restricted sense

Most of these distinctions are theoretically vague and difficult to quantify empirically. They are nevertheless useful, I believe, by providing some concepts for our thinking and hence some general background for our discussion. For instance, I shall emphasize the drastic changes over the centuries in the relative importance for the distribution of income, economic power and individual welfare of each of the six factors and the corresponding factor returns.

When the emphasis is on income available to the individual households for consumption and saving - i.e. real disposable income rather than money factor income - consideration has, of course, to be given also to variables such as taxes, transfer payments, and commodity prices.

I will start the discussion with the distribution of resources between the public and the private sector. This discussion will be limited to the variables income and wealth. Thereafter, I will turn to the more "multidimensional" distribution problems within the private sector, whereby a great number of different aspects of the distribution issues - in principle all the variables in the social preference function (1) such as private and public consumption - become relevant.

[1] It is, of course, an open question whether "natural abilities" should be classified as capital in a wide sense, or as labor in a restricted sense. To achieve a parallel to the treatment of natural resources - a form of capital, providing conventional rent - natural abilities, too, have been classified in the righthand column as a form of capital (human resources) providing rents on natural abilities.

Chapter II

DISTRIBUTION BETWEEN PUBLIC AND PRIVATE SECTOR

The distribution of income and wealth between the public and the private sector can perhaps largely be seen as an issue of the distribution of power in the economy: the command over real resources, including the command over assets and the work of individuals. However, indirectly there is, of course, also an issue of the distribution of individual welfare, as the public authorities in many cases most likely are interested not only in their own powers, but also in influencing the welfare of individuals in society.

Ownership and factor income

The distribution of the ownership of capital between the public and private sectors may be regarded as a measure of the degree of nationalization of an economy. In this respect, the mixed economies of the West vary considerably. In the case of physical assets, including houses but not other durable consumer goods, the public share seems to range from about 20 to about 35 percent in most Western countries - with a rising trend during recent decades. In the case of total net wealth, the figure is often smaller due to the public debt, and to the fact that the private sector holds a considerable amount of durable consumer goods (in addition to houses).

The public share of total factor incomes, by contrast, is very low in most countries, particularly of course in the Western societies. There are several reasons for this: (1) prices on public output are usually kept rather low relative to production costs (often in fact below production costs); (2) labor income completely dominates national income in highly developed economies, and labor income always winds up in the private sector (as long as there are no "state slaves"); (3) a rather moderate fraction of physical and financial assets is in most of these countries, as already mentioned, held by the public sector; and (4) bookkeeping customs make the recorded return on capital in large fractions of the public sector (such as health and education) very low, as the contribution to GNP in these sectors is largely defined as the labor costs.

The main reason why the private share of wealth, as defined above, is so much smaller than the private share of factor income is, of course, that the concept of wealth used in the figures above (physical and financial assets) does not include the capital value of expected future (conventional) labor income, which winds up in the private sector. In other words, the capital values of return on human capital, rents on individual abilities, and pure wages and salaries, as defined above, have not been included here in the concept of (private) wealth. If they had been, the private share of total wealth would, of course, have been much closer to, or even identical with, the private share of total factor income.

Swedish figures

Sweden belongs to the category of countries where the expansion of public ownership has mainly taken the form of investment in the public infrastructure and financial saving rather than of nationalization of industries (manufacturing). Still only about 5 percent of manufacturing is publicly owned - about 5 additional percent being cooperative - though there has been a clear tendency in recent years to more public ownership in manufacturing, largely in the form of "joint ventures" with private firms, usually with minority interests for the state.

The only field where a substantial increase in the share of public ownership of physical assets has taken place in Sweden in recent decades is housing - besides the expansion of the "public infrastructure" (roads, railways, harbors, schools, hospitals and half of electricity production). About 20 percent of all apartments, including owner-occupied small houses, are owned by the public sector (mainly foundations controlled by municipalities) and about 15 percent are owner-occupied apartments in apartment houses (often called "cooperatives", though the ownership of each apartment is in fact individual). The rest is private apartment houses (25 percent) and private owner-occupied houses (40 percent).

It is difficult to obtain reliable figures on the public share of the total stock of physical assets in Sweden today; however, available statistics suggest a figure around 30 percent if durable consumer goods are included, about a "middle-way" figure for Western Europe, compared to perhaps 20 percent in 1950. The figure (for today) would be about 3 percentage points higher if durable consumer goods, other than houses, are excluded from the definition of physical assets.

According to a study by Roland Spånt, the percentage distribution of the stock of physical assets (including consumer durable goods) was in 1970 approximately as follows [Spånt, 1973]:

private individuals (households)	36 %	private	60 %
corporations	24 %		
central government	13 %	public	29 %
local governments	16 %		
producers' and consumers' cooperations (including housing "cooperatives")	6 %	cooperative	6 %
others	4 %		

In the case of the flow of physical investment, the public share constitutes about 40 percent (including durable consumer goods), as compared to 30-35 percent in 1950.

These figures refer to physical assets. The holdings of financial assets by the public sector in Sweden have also increased rapidly during the post-World War II period. According to Spånt, 23 percent of the gross holdings of financial assets were in 1970 held by the public sector (central government, central bank and social security funds) the remainder being mainly private, with the banking system as the main asset holder. If internal credits within the public sector are "netted out" (mainly public bonds held by the social security funds), by "consolidating" the public authorities to one single public sector, the figure falls to 15 percent.[1]

Disposable income

Public disposable income may be defined as public expenditures on goods and services - public consumption and public investment - plus public financial saving. As is well known, the sum of these items, relative to GNP, has increased over the last decades in most western countries.

In the case of the expansion of public consumption and public investment, relative to GNP, the conventional explanation is perhaps that there is a high "income elasticity" for some services which have traditionally been not only financed but also largely

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[1] On a complete net basis (all financial assets minus all financial liabilities for each sector), only four sectors had positive holdings: the social insurance funds (Skr. 34 billion), the banks (Skr. 5 billion), the insurance companies (Skr. 31 billion) and the household sector (Skr. 23 billion) - pension claims and pension obligations not being counted. Thus, the "semipublic" social insurance funds comprise no less than about 37 percent of the net financial asset holdings in the economy, as defined by the figures just mentioned; however, 8 percentage points of these 37 consist of claims on the central and local governments (i.e. internal claims and liabilities within the public sector) rather than on the private sector. Thus, the share of the pension funds of all net financial claims amounts to about 29 percent if internal claims within the public sector are "netted out".

provided by the public sector - roads, education, health care, etc.: when income rises in a society, the demand for these services tends to rise due to a combination of individual demand (at subsidized prices) and political decisions. There seems to be a strong belief among politicians, in many countries, that services of this type, even if they are not "collective goods" in the technical sense of the term, (1) should be consumed in larger quantities than if they were supplied on markets in the same way as ordinary consumer goods (making them "merit goods"); and (2) should be more equally distributed than consumption in general. It is obviously also often believed (3) that both these objectives can be achieved by supplying the services from the public sector, rather than by just subsidizing production and consumption of such services. Another, related reason is probably (4) that the authorities want to *control in detail* both the distribution and the quality of these services.

The expansion of *public financial saving* is probably often connected with ambitions to increase the saving share of national income, and in some countries presumably also with ideological considerations, and thereby related ambitions to change the distribution of wealth and the "power" over investment decisions in favor of politicians and administrators in the public sector: "more power to the people".

Swedish figures

In Sweden, the share of *total public revenues* to GNP (measured at market prices) has risen from about 17 percent in 1938/39 to about 51 percent in the early seventies (average for the years 1970-73). Thus, we may say that the public sector in Sweden today "directs" about half the income flows in the economy. However, as a large fraction of the public revenues, in fact 18 percent of GNP, reverts to the private sector as transfer payments, *public disposable income* (public spending on goods and services *plus* public financial saving) is, of course, a much smaller share of GNP - 32 percent in 1970/73, as compared to 16 percent in the early fifties.

The distribution of *disposable income* between the public and private sectors, the latter subdivided on households and firms, is illustrated in Table 1. During the last two decades, the public share of disposable income has, according to the table, increased from about 20 to about 35 percent. (Disposable household income is defined here as factor incomes of households *plus* transfer payments *minus* direct taxes; and disposable income of firms is defined as business saving.)

TABLE 1

Distribution of disposable income. Percent of total

Period	1 Public authorities	2 Social insurance inst.	Σ 1-2	3 Firms[1]	4 Households[2]	Σ 1-4
1950-54	19.6	0.2	19.8	6.0	74.2	100.0
1955-59	21.4	0.6	22.0	4.0	74.0	100.0
1960-64	24.3	2.2	26.5	4.0	69.5	100.0
1965-69	27.8	4.4	32.2	3.3	64.5	100.0
1970-73	30.1	5.5	35.6	1.6	62.8	100.0
Change $\frac{1950\text{-}54}{1970\text{-}73}$	+10.5	+5.3	+15.8	-4.4	-11.4	-15.8

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[1] Includes only "juridical persons", such as various types of corporations, private as well as public, and government public utilities ("affärsverk").

[2] Includes all incomes of self-employed people.

Source: Central Bureau of Statistics, *National Accounts.*

As public consumption and transfer payments have increased less than public revenues, there has been a considerable increase also in public saving (and credit supply), in particular in the form of financial savings by the semipublic Pension Funds (the AP system), which started to be built up in 1960 on the basis of payroll taxes. The *raison d'être* of the funds was to compensate for an expected fall in private saving by increased public saving, when a new system of compulsory pensions for the entire labor force was introduced in 1960. As a consequence, the public share of gross saving has increased from 31 percent in the late fifties to about 43 percent in the early seventies; i.e. a considerable nationalization of savings has taken place (Table 2).

As the pension funds have been allocated to lending rather than to equity capital, the share of the total *flow* of credit that is provided by the public sector - excluding the publicly owned banks (the Postal Bank and Sveriges Kreditbank, amalagamated in 1974 to PK Banken) - to other sectors than the central government has increased dramatically, from a few percent in 1950 to *40 percent* in the early seventies - mainly in the form of purchases of mortgage bonds, municipal bonds, and industrial bonds by the AP Fund - in addition to the Fund's purchases of central government bonds, which is simply a transaction between the central government and the Fund. The share of the AP Fund of the total *flow* of credit obtained by the private sector, *excluding housing*, was about *28 percent* in 1972.[1]

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[1] However, the trend to an increased share of public saving (and public credit supply), relative to total savings (and total supply of credit) was reversed in 1973 and 1974, whether temporarily or permanently is difficult to say. Two reasons were increased profits and an increase in the savings ratio of households; the "mirror image" was a considerable increase in the deficit in the state budget. (In 1975, a shift of the distribution of income from firms to households seems to be occurring.) From 1974, there was also a dramatic increase in "foreign saving" vis à vis the Swedish economy, as reflected in an increase in the balance-of-payments deficit. Also this increase in financial saving (by foreigners) was "mirrored" in a fall in the financial savings by the state, registered in the deficit in the state budget. This meant that public saving fell to approximately 30 percent of total domestic (gross) saving in 1974 and 1975, as compared to about 43 percent in 1969-72 (as noted in Table 2).

TABLE 2

Origin of saving. Percent of total

Period	1 Central government	2 Local governments	3 Social security system	Σ 1-3	4 Housing	5 Private insurance funds	6 Firms	7 Household (excl. insurance saving)	Σ 1-7
1957-60	14.3	14.4	2.3	31.0	7.1	9.4	42.4	10.1	100.0
1961-64	11.6	11.6	8.3	31.4	6.2	5.0	45.5	12.0	100.0
1965-68	8.1	17.0	15.3	40.4	6.0	6.0	42.6	5.1	100.0
1969-72	5.7	17.4	20.1	43.2	6.6	7.4	36.2	6.6	100.0
Change $\frac{1957-60}{1969-72}$	-8.6	+3.0	+17.8	+12.2	-0.5	-2.0	-6.2	-3.5	-12.2

Source: Central Bureau of Statistics, *National Accounts*; SOU 1973:21, *Svensk ekonomi fram till 1977*; and SOU 1971:7, Supplement 4, *Finansiella tillväxtaspekter 1960–1975.*

Chapter III

DISTRIBUTION WITHIN PRIVATE SECTOR

Objectives and measurements

A well-known distinction in analyses of distribution problems is between the vertical and the horizontal distribution - the vertical distribution (or "size distribution") of welfare being the distribution among different welfare classes, the horizontal distribution being the distribution among various socioeconomic groups regardless of their place in the vertical distribution.

It remains to specify, in more detail, what dimensions of the horizontal or vertical distribution that should be studied and emphasized, which is, of course, basically an issue about ethical values and political preferences. In the case of the horizontal distribution, we have "simply" to pick some socioeconomic groups - employees in certain industries, occupations, regions or age-groups; pensioners; farmers; manual or non-manual workers; people with different education levels; families with or without children; handicapped; unemployed; sick people; etc. - and consider their welfare, either in absolute terms or relative to other groups, depending on whether we are concerned with the absolute level of well-being of a group, or with their relative position in the society where they live.

More complex analytical problems arise when we look at the vertical distribution. Let us here confine ourselves to three dimensions of the vertical distribution, each related to some specific strategy in redistribution policy. For the sake of simplicity, I shall, to begin with, talk about "income" in this section on measurement problems when I really mean "welfare".

Strategy 1: To raise the income level of low-income groups relative to the middle-income groups. This type of equalization is illustrated in the left part of Chart 1a, where the solid curve depicts the frequency (density) distribution before, and the dotted curve the distribution after a change. This strategy corresponds roughly to Rawls' criteria for increased justice: a rise in incomes of the people with the

CHART 1: Alternative vertical distribution

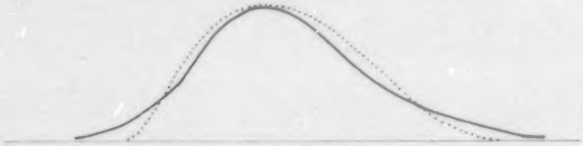

Chart 1a

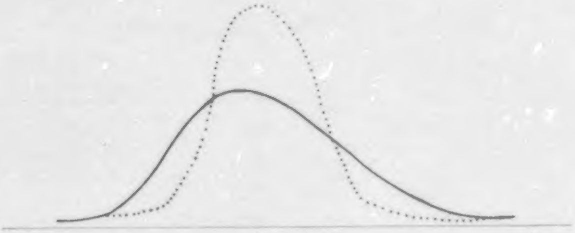

Chart 1b

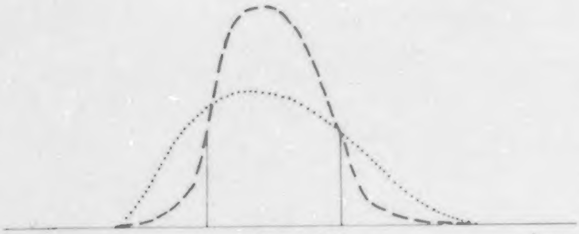

Chart 1c

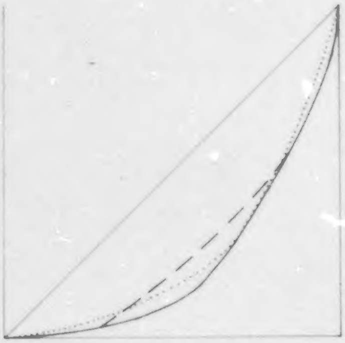

Chart 1d
Lorenz Curve

lowest incomes is given the highest priority in distribution policy [Rawls, 1972].[1] In the context of a Lorenz diagram (depicting the shares of total income obtained by people below various specified income levels), this type of equalization of income shows up as an upward shift in the Lorenz curve in the low-income brackets (a shift from the solid to the dotted curve in the *left* part of Chart 1d).

Strategy 2: To reduce the position of *top-income receivers* relative to the middle-income receivers, as illustrated by the shift of the distribution curve from the solid to the dotted position in *the right part* of Chart 1a.[2] In the Lorenz diagram (Chart 1d), it corresponds to an upward shift of the curve in the high-income part of the chart, to the dotted position.

Strategy 3: To reduce the dispersion of incomes among people *within the middle brackets*, as described by the change from the solid to the dotted curve in Chart 1b. In this case, very low- and very high-income groups are unaffected, whereas a large fraction of the rest of the population is pushed to the middle-income brackets. In the context of a Lorenz diagram (Chart 1d) this would show up as a shift in the curve around the mean, from the solid to the broken curve.[3]

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[1] If we want to emphasize what has happened in this part of the income distribution, when using *one single* summary statistic to characterize the whole distribution, such a measure then has, of course, to be sensitive to redistributions between "low" and "middle" income earners. One measure that fulfills this requirement rather well is the standard deviation of logarithms [Atkinson, 1970].

[2] The coefficient of variation may be an appropriate measure to emphasize this aspect of the distribution, if we again insist on using a single summary statistic as the measure of the degree of inequality.

[3] The Gini coefficient (the so-called coefficient of inequality) might be an appropriate summary measure, if we want to emphasize this type of change with the help of one summary statistic for the whole income distribution. The Gini coefficient measures the area between the Lorenz curve and the 45-degree line in Chart 1d, as a fraction of the total area under the 45-degree line.

Anthony Atkinson [Atkinson, 1970] has suggested as a *single* measure of the vertical income distribution "the equally distributed equivalent level of income" which is able to emphasize *any one* of these various aspects of the distribution of income by simply varying one parameter ε, expressing the degree of "inequality aversion". This means, of course, that a comparison of income distributions has to be based on an arbitrarily (subjectively) chosen value of the parameter ε - high values expressing concern for the distribution among low-income groups and low values expressing concern for the distribution among high-income groups.

For a concise, though somewhat technical, discussion of alternative measurements of the vertical income distribution see [Sen, 1973].

It is not completely obvious which of these aspects of the distribution of income that most people are primarily concerned about. For instance, what will upset a blue-collar worker more: that the manager of a corporation has an income that is five times his own (before or after taxes and transfers ?), or that the income of his neighbor blue-collar worker is 10-20 percent higher than his own? And what are the "verbally stated" and the "revealed" preferences, respectively, among politicians concerning distribution problems? For instance, an analysis of the effects on the income distribution of various government programs gives a rather ambiguous picture of the "revealed preferences" of politicians. Examples of policies which hardly make the distribution more even are the methods chosen in many countries to finance higher education; selective subsidies to business firms, including several large corporations; parts of the agricultural price support; loopholes in tax laws; etc.[1]

The attitude towards inequalities, and the motives for and consequences of trying to remove them, differ among social scientists as well. Many, perhaps most, social scientists regard existing inequalities as a major defect of an economic and social system - in particular if some sections of the population live in poverty and other sections in affluence (or even luxury). However, there are also observers who regard existing inequalities (in some countries at least) largely as a by-product of the success of a society to provide opportunities for self-fulfilment of individuals, e.g. to let individuals freely choose between consumption and leisure, between hard and easy work, between present and future consumptions, etc.[2]

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[1] A rather special expression of the ambiguity in prevailing opinions among politicians about the objective of income distribution policy is that governments, at the same time as they sometimes try to even out the distribution of income by tax policies, have created systems and organizations designed to collect small sums of money from many people and give back large amounts of money to small, arbitrarily chosen groups, i.e. systems designed to make the distribution of income less equal. I am, of course, thinking about government-sponsored lotteries - developed partly to meet a demand for lotteries by the general public, partly to prevent private firms from satisfying this demand.

[2] The first-mentioned point of view hardly needs illustration from the literature, as it is quite usual. Harry Johnson is an example of an economist following the latter line of thought [Johnson, 1973].

A crucial question is then how much of the existing inequality that "reasonably" may be said to fall into these two different categories. The answer to this question must certainly vary dramatically depending on which nations that are studied. Most observers would probably agree that in many (most?) Less Developed Countries, inequalities can largely be regarded as a major "defect" of society, as many of the inequalities hardly fulfil any "productive" function, on balance, when all consequences are taken into account. Most observers would probably also agree that a much larger fraction of the inequalities (than in many LDCs) may be regarded as an expression of the "success" of that society in providing opportunities for "self-fulfilment" of individuals in for instance the North-West European countries, North America, Japan, Australia, New Zealand and some East-European countries.

If distribution analysis is connected with difficult measurement problems in the case of income, that is, of course, even more the case when we look at the distribution of "welfare" in a wider sense. However, several of the variables in the earlier mentioned preference function can, at least in principle, be measured in about the same way as income; this holds perhaps in particular for consumption of private goods, leisure time, and wealth. More formidable problems are encountered when we want to consider the distribution also of other "welfare-creating" variables, such as public consumption, health, and the natural and man-made environment - not to speak of personal security, individual freedom, personal relations, and the ability to influence political and administrative decisions. This is, of course, exactly the type of problems which are dealt with in the growing literature on "levels of living" and "social indicators". (See pp. 341-349 "Ultimately", an economist is probably inclined to argue that an evaluation of such variables can only be made - on a subjective basis - by the individual himself, and that studies of the "revealed preferences" of individuals, based on studies of their factual choices, are the only way to get adequate information: how the individual actually chooses himself between consumption, leisure, work effort and working conditions; between income and place of living, etc.

Ambitions in distribution policy in Sweden

It is probably correct to say that the main ambition in Swedish redistribution policy during the last four decades, as revealed by the actual policy, at least until very recently, has been to influence the *horizontal* rather than the vertical distribution, though the choice of socioeconomic groups in "horizontal redistribution policy" - elderly, handicapped, sick, unemployed, etc. - has, no doubt, been strongly influenced by the place of these groups in the vertical distribution.

It would seem that the objectives and ambitions in income distribution policy in Sweden changed at the end of the 1960s - in two respects. The emphasis was more than earlier put on the vertical income distribution. And the ambition to influence the distribution of income *within the middle-income brackets* became more pronounced than earlier - among people, say, with factor incomes (from full-time occupation) of between 20,000 and 60,000 Skr. in 1972-73. (Dollar values may be obtained by dividing by *about* 4.3.) (See Chart 13 p.314 and also Charts A:3 in the Statistical Appendix.)

Thus, in terms of Chart 1a above, the *vertical* income distribution policy in Sweden has until recently mainly concentrated on attempts to shift the distribution from the solid to the dotted curve in the chart, with the emphasis perhaps on the shift in the *left* part of the chart - i.e. policies resembling strategy 1, though with elements of strategy 2 as well. Recent shifts in the ambitions mean that the policy shifted to strategy 3 - or rather that strategy 3 was *added* to strategies 1 and 2. It became the aspiration to change the distribution from a position similar to the dotted curve in Chart 1c (this curve being identical to the dotted curve in Chart 1a) to a position like the broken curve. Thereby, a very large fraction of (full-time) income receivers became "assembled" in a rather narrow interval of *disposable* income - approximately between Skr. 35 and 45,000 (8,000-10,000 dollars) in 1973 incomes, particularly in the case of families with children (see p.288-89). This has been achieved by a combination of progressive taxation and income-dependent transfers, which are reduced "in steps" when the income of a household rises above certain threshold levels.

However, there seems to be a retreat at present (in 1974-75) in the ambition to equalize incomes within the middle-income brackets, manifested as attempts to reduce the marginal tax rates and the progressiveness not only in Sweden but in all Scandinavian countries. For instance, labor unions, in particular white-collar employees, are pressing in this direction.

Factor income

In the schematic discussion above of alternative ways of measuring the distribution of welfare we talked, for the sake of convenience, of "income" rather than of welfare. However, the "links" in the chain between income and welfare (and power) are both many and complicated. It may be useful to distinguish between four such links. Each link is a convenient point of intervention if the authorities want to influence the distribution of welfare in society. This gives us the following classification of measures in redistribution policy: (1) measures designed to influence the distribution of factor incomes ("the functional distribution"); (2) measures modifying the link between factor income and disposable money income (such as taxes and transfer payments); (3) measures influencing the link between disposable money income and disposable real income (such as indirect taxes and price regulations); (4) measures modifying the link between on the one hand real disposable income and on the other hand welfare and economic power (such as policies changing the distribution of private and public consumption, wealth, working conditions, leisure, environmental factors, and various other factors in the social preference function (1)). It may be of interest ot organize the subsequent analysis of distribution policy under these four headings.[1]

Let us start with the distribution of factor income. As we live largely in a market economy, the natural point of departure is then, of course, an analysis of market processes (demand-supply processes) for factors of production - though constrained and modified by "institutional" factors such as public legislation, social conventions, administrative rules, bureaucratic hierarchies and the operations of labor market organizations.

The (constrained) market process is assumed to determine factor returns (factor prices), which together with the distribution of the ownership (holdings) of the factors of production among individuals and households, and the capacity utilization of these factors, determine the distribution of factor incomes. An equalization of factor incomes could, in principle, be brought about either by achieving a more equal distribution of factor holdings and/or a more equal capacity utilization of factors, or by a reduction in the differences in factor returns. Formulated in another way, we could either try to bring about a more equal distribution of the "advantages" (i.e. the factor endowments) by which people enter our competitive economic system, or we could try to reduce the benefits from success and the punishments for failure (as manifested by the differences among individuals in factor prices and capacity utilization).

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[1] A paper by Ragnar Bentzel has inspired me to this classification [Bentzel, 1970].

Let us start with what was earlier (p240) baptized conventional capital, thereafter turning to conventional labor, i.e. pure labor, human capital, and natural abilities.

(i) *Conventional capital*

(a) The distribution of conventional capital relative to total capital

Following the conventions of economic theory, wealth could be defined as the capital value of the (expected) future income stream; or alternatively, income could be defined as the return on the capital values - depending on whether we want to start the analysis with the chicken or with the egg.

Then, if we study the distribution of income, why should we also be interested in the distribution of wealth, and vice versa? Or, in other words, does information on the distribution of wealth give us *additional* information as compared to what is obtained by studying the distribution of income? The answer seems to be "yes", for at least three reasons. *First* of all, there are types of wealth that do not give any income as a return - money, jewelry, antiques etc. - or where income is analytically "difficult" to impute, such as owner-occupied houses. *Secondly*, when studies of the distribution of income are based on *current* income, and this is not representative of the distribution of the (expected) future income stream, statistics on wealth may give additional information as compared to the information provided by statistics over current income. *Thirdly*, it may be argued that certain types of wealth *holdings* yield utility to the individual *beside* the utility of income (or consumption) stream generated by the wealth holdings - by giving the individual security, liquidity, bargaining power, freedom, prestige, etc. After all, wealth can be immediately consumed.

Thus, it is worthwhile to study the distribution of wealth, besides the distribution of income. However, there is an obvious risk of "doublecounting" the economic resources available to an individual by adding wealth and capital income. For when capital is consumed, capital income, too, will of course go down correspondingly. One way of handling these problems analytically is to assume a utility function for the individual, where the flow (over time) of consumption and the stock of wealth (at various points of time) enter as separate, independent variables, as in fact assumed in equation (1).

The analytical difficulties arising when comparing wealth holdings between individuals stem from the fact that part of the differences in wealth among individuals simply reflects differences in preferences concerning the preferred time path of consumption, as well as differences in the preferences of consumption relative to wealth holdings. Two persons with the same "life income" may have different wealth at every point of time simply because of these dissimilarities in preferences, and hence in their "time discount"; thus, the one with the lower time discount (higher evaluation of future consumption), who therefore saves more (for future consumption), will in every period have higher wealth holdings than the individual with a higher time discount, who wants to consume more "today". Should *such* differences in wealth, which simply reflect disparate time preferences and preferences for wealth holdings, be regarded as a problem from the point of view of distribution of welfare? Many people will probably say "no".

It should be emphasized, however, that there are *in reality* other, often much more important, explanations for the *biggest* divergencies in wealth holdings - such as inheritances, and differences in labor income over a number of years. In fact, the distribution of (conventional) capital may perhaps be regarded as determined mainly by (1) the system of inheritance; (2) accumulated incomes from other sources than capital ("conventional labor income"); (3) the saving ratio; (4) the return on assets; (5) "unexpected" capital gains ("luck"); and (6) time (over which wealth accumulates through saving and return on capital).

When looking at inequality in a historical perspective, it is obvious that the dominant form of wealth in the preindustrial society was the ownership of natural resources, mainly land, whereas during the course of the industrialization process, produced physical assets and financial assets became the predominant parts of the stock of wealth. Thus, in these "historical" periods, the distribution of "conventional capital" - natural resources, produced physical assets, and financial assets - was no doubt the dominant aspect of the distribution of wealth.

In the highly developed society of today, the situation is drastically different. For instance, durable consumer goods play a much more important role for wealth holdings than earlier, and such capital goods are probably much more evenly distributed than "traditional" forms of capital. This part of the stock of physical capital is seldom included in a realistic way in wealth statistics; (it has been schematically included in some statistics in this paper).

However, more important, the capital value of expected future returns on "conventional labor", i.e. what was earlier called pure labor, human capital, and natural abilities, is today *much* larger than the value of "conventional wealth". There are several reasons for this change. *First* of all, conventional labor income forms a larger fraction than earlier of total income, partly reflecting the fact that accumulated investment in human capital - through education, on-the-job training, and health care - has probably expanded much more rapidly than investment in physical and financial assets. It makes good sense to calculate capital values of incomes generated from such investments in human capital. *Secondly*, "full employment" policies, and new employer-employee relations, have created much stronger certainty than during earlier periods about the future incomes of employees; thus, it makes much more sense than previously to capitalize expected future wage-earner incomes - without using an extremely heavy risk discount. In other words, the *capital value* of expected future wage-earner incomes has increased much more rapidly than have wages and salaries themselves. *Thirdly*, wage earners have today very large pension claims on their employers, on the government, and on the social security systems; these pension claims create quite as safe future incomes (for the pensioner) as do conventional capital assets. In fact, the difference is not dramatic for the individual between wealth in the form of individual savings for old age (by way of private insurance and pension policies or bank deposits) and institutionalized pension schemes (by way of contracts with firms or "forced public savings").

As always when aggregating heterogenous items, there is, of course, some "loss of information" if all types of assets are *added*, as the risk and the liquidity vary considerably among different assets. However, this problem is not unique for the distinction between "conventional capital" and "human capital"; it holds for all different types of assets - money balances, savings deposits, houses, machines, private and public insurance and pension policies, etc. There is just a difference in degree of risk and liquidity of the various assets - "human capital" not necessarily being the most risky and less liquid; it is easier to borrow for people who are investing in, or have invested in, human capital, than for others, ceteris paribus.

Many of these factors make "conventional" statistics on wealth, as presented earlier, misleading - understating the volume of "wealth", and exaggerating not only the share of public wealth, but probably also the inequality of private wealth holdings.

There are also important "ideological" consequences of the abovementioned changes over time in the character and composition of the stock of capital (in a wide sense). For if the basic similarity between the accumulation of conventional capital and human capital is recognized - the postponement of consumption, the return on earlier investment, the control of production processes, and the power to "command" others - we are entitled to ask who are the most important "capitalists" of our time: the owners of physical and financial assets or high-echelon employees in the private and public sector, i.e. people with higher education, good health, exceptional personal abilities (among which energy is perhaps the most important one) and a good (or at least a long) on-the-job training? I think the trend has quite clearly worked in "favor" of the last-mentioned groups.

a.1 Swedish figures

The main source of information about the distribution of wealth among individuals in Sweden is taxation statistics. An indication of the limited value of such statistics as a measure of "total" wealth is that whereas "taxable" wealth held by individuals (according to taxation statistics) was slightly more than Skr. 60 billion in 1970, the total value of individually owned wealth, including durable consumer goods and pension rights (but not expected future wage income; antiques, art, etc.) has been estimated at some Skr. 570 billion [Spånt, 1973].

Some of the main reasons for this discrepancy are (1) that market prices of wealth are often higher than the prices assessed by the tax authorities (in particular for real property); (2) that only net wealth in excess of Skr. 150,000 is subject to wealth tax (in 1970 the limit was Skr. 100,000); (3) that durable consumer goods are not included in the statistics; and (4) that the capital values of contracts about pension rights are not included. Among these factors, the fourth is by far the most important one.[1]

Thus, we have illustrated the statement earlier that statistics on wealth that do not include durable consumer goods and, in particular, the capital value of at least some "conventional labor income", such as pension claims, are highly misleading for the total size, and probably also the distribution, of "total" wealth.

There is (at least) one reason, however, why figures on "conventional wealth" are nevertheless of some interest. Conventional capital - financial and physical assets - are easier to transform into other assets, and into consumption, than is the capital value of the return on human capital, natural abilities and pure labor; in other words, physical and financial assets are much more liquid than many other forms of capital. However, statistical deficiencies still, of course, plague such data.[2] It is, in fact, in the case of Sweden, possible to show contemporary data on the distribution of wealth only of "taxable" wealth greater than Skr. 100,000 per household (in 1970); it is shown in the Lorenz curve in Chart 2.

The distribution of shares - an asset often regarded as particularly interesting from the point of view of economic power - is usually much more uneven than the distribution of most other types of fi-

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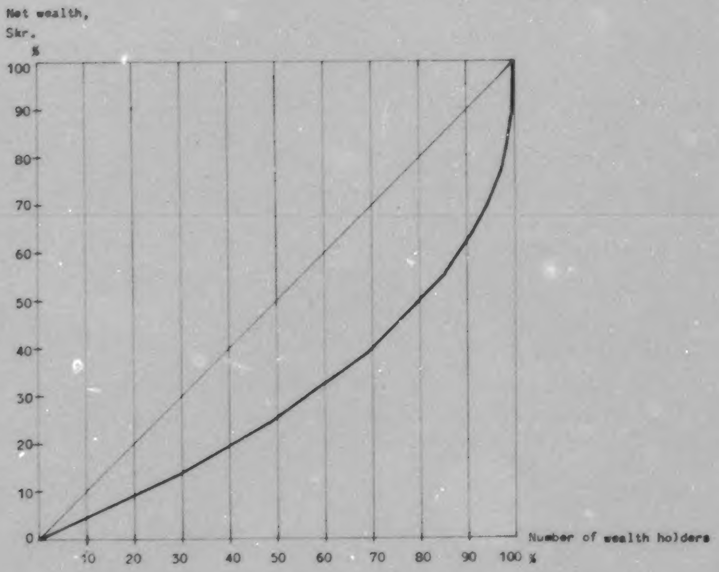
[1] If the capital values of all expected future incomes had been included in the definition of private wealth - including the capital value of expected future "conventional labor income" - the figure would, of course, have been much higher than the Skr. 570 billion newly mentioned. Just as an illustration: if the total value of private disposable income, amounting to Skr. 102 billion in 1970, is capitalized (indefinitely) at an interest rate of 5 percent, the capital value is about 2,040 billion; if capitalized at 10 percent the amount is about 1,020 billion. (Even higher figures for the capital value of the stream of private disposable income are, of course, obtained if the growth of disposable income is considered.) Such measures of wealth are, naturally, only other ways of expressing the size of disposable income (as a stock of wealth rather than as a flow of income), illustrating the obvious logical relations between the concepts of income and wealth.

[2] For instance, taxation statistics, including also reported wealth below the "taxable" level (Skr. 100,000 in 1966), suggest that only 30 percent of the population had wealth higher than Skr. 10,000. The figure would increase quite a bit if all reported wealth in these statistics was valued at market prices. Moreover, we know from scanty evidence (such as two savings studies from the fifties) that a large fraction of the population has bank deposits, which are not reflected in taxation statistics [Thore, 1959]. A figure that would also include durable consumer goods and pension claims, would, of course, give a drastically different figure - probably showing that most households have wealth over Skr. 10,000.

CHART 2

Lorenz curve for vertical wealth distribution, of wealth above Skr. 100,000. Assessed net wealth according to taxation statistics 31.12.1969.



Source: Based on figures from [Spånt, 1973].

nancial and physical wealth. And it is probably more unevenly distributed in Sweden than in most other developed countries. Available studies (for 1970) suggest that private individuals (households) own about 63 percent of the (the total market value of) shares, other types of "final owners" (family foundations, pension foundations, charity organizations, etc.) about 13 percent, and so-called secondary owners (holding companies, production firms, insurance companies, etc.), about 25 percent. It would seem that the group of "secondary owners" has doubled its share of the total stock during the last two decades. This development is very much in line with the trend towards "fund-capitalism" that is pronounced in many western countries.

Among private households, about 15 percent seem to own shares (in 1966). And about 1 percent of the share owners held 50 percent of the stock of shares in a sample of (15) corporations registered on the stock exchange (in 1964). And 0.1 percent held about 25 percent. It is not clear how representative these figures are, however, They reflect, of course, partly the big role of some large financial institutions (such as insurance companies).

(b) Policies to influence the distribution of ownership

One way of influencing gradually, by political decisions, the amount and distribution of wealth in the private sector has already been mentioned: public saving, i.e. taxes (and fees) in excess of public spending on transfers and public consumption. There are, of course, also more "direct" methods of influencing the amount and distribution of private wealth by way of changes in the public wealth: (i) confiscation (no compensation), (ii) nationalization or expropriation (with at least some compensation), (iii) wealth taxes, and (iv) inheritance taxes.

Large-scale confiscation, nationalization and expropriation may, of course, all be rather dramatic ways of changing the structure of ownership in a country. However, as they tend to move us away from a "mixed economy" system, they will not be discussed here. Let us then concentrate on the two last-mentioned methods - wealth an inheritance taxes. Wealth taxes could, theoretically, provide a rather effective device for changing the distribution of wealth within the private sector. However, in reality, the loopholes in wealth tax systems seem to be very large in all countries. To fill these loopholes effectively would presumably require a very close control of economic transactions and considerable control over and "intrusions" into the private life of individuals.

Whereas the existence of wealth taxes is probably based on the idea of the equalizing of existing *states* among individuals, inheritance taxes can be motivated by the "weaker" ambition to euqalize *opportunities* for individuals ("from birth"). In principle, inheritance taxes could, if efficiently implemented, be a very effective method of reducing drastically, over one or a few generations, the inequalities of capital and capital income - and therefore also income *at the very top* of the income distribution, where capital incomes usually account for a relatively large fraction of incomes. However, again, an effective elimination of loopholes would require very close government control over transactions by individuals, even *within* families.

It is obvious that many people, including most politicians, regard the inheritance of physical and financial wealth as ethically less acceptable than the inheritance of genes and of cultural patterns from the parents, presumably because the former type of inheritance is "easier" to influence by political decisions than the latter. However, as pointed out by Harry Johnson: "One of the major sources of difficulty [in inequality reform] is the role of the family in the transmission of material property, genetic characteristics - good or bad - and attitudes towards work and life. Few, indeed would be prepared to alter sufficiently the institution of the family to eliminate these family-transmitted sources of inequality".[1]

b.1 Swedish figures

The wealth tax in Sweden is today (1975) 0.25 percent on fortunes of Skr. 200,000, and 1.5 percent on fortunes of Skr. 1 million. The ceiling for the rate is 2.5 percent, which is also the marginal rate for wealth above Skr. 1 million.

The figures might at first glance look rather small. However, the impact should be seen in the context of the income tax system, as the wealth tax is not deductible for income tax purposes. Thus, suppose that a household (for instance an owner of a family firm) has a wealth tax of 1.5 percent and that his marginal income tax rate is 75 percent (the rate is 73 percent in the bracket immediately below Skr. 150,000 and 78 percent in the bracket immediately above). To pay the wealth tax, he then needs a return on his capital of 6 percent (4x1.5). This would then leave *nothing* for private consumption or capital accumulation; out of the 6 percent, 4.5 percent would go to the income tax and the remaining 1.5 percent to the wealth tax. This means, in fact, that the return after tax *theoretically* in many cases would be negative for wealth owners in Sweden - even in cases where the return before taxes is several percent, perhaps as we have seen up to 6 percent. However, in practice the effects are often drastically modified by unrealistically low evaluations, for tax purpose, of wealth in physical assets that are used in the production process.

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[1] [Johnson, 1973, p. 53].

Inheritance taxes in Sweden are today for children ("direct heirs") about 10 percent for an inheritance of Skr. 100,000 and 53 percent for an inheritance of Skr. 5 million; they are higher for more distant relatives. The upper limit for children is 65 percent. Thus, the Swedish inheritance taxes are obviously not designed to wipe out private wealth, though they could theoretically have considerable effects in the long run on the distribution of private wealth (as compared to a system without inheritance taxes).

In reality legal and illegal loopholes make the size of the wealth and inheritance taxes much lower than suggested by these figures. For instance, in 1972, only Skr. 0.57 billion were paid as wealth taxes in Sweden, and only Skr. 0.28 billion as inheritance and gift taxes - to compare with the figures on officially recorded wealth holdings of some Skr. 68 billion (of holdings mainly above Skr. 150,000 in 1972).

It might also be possible to find tools for redistributing wealth within the private sector, without (first) transferring it to the public sector. One such measure is to increase the incentives to save for low- and medium-income earners and wealth holders. Some countries, such as West Germany, have (in a very modest way) tried tax favors and other types of subsidies to small savers, which means in fact an inter-individual differentiation in the after-tax interest rate on saving.

Another conceivable method would be to design systems that give employees a share in the accumulation of equity capital in firms, for instance by way of special "employee shares", distributed to the employees either as a substitute for or as a complement to wages and salaries. In order to induce the individual employee to keep his shares for some time, the government could possibly give special tax favors to dividends on such shares ("employee shares"), for instance by making them tax-free as long as the original owner keeps them.

A more collectivistic solution to the problem of the distribution of equity capital within the private sector would be to create funds of equity capital, owned collectively by employee organizations. Such systems are currently being discussed in several countries. [illegible]viously such wealth holdings do not give much "direct" utility to the individual employee - from the security, liquidity, freedom, prestige, etc. pointsof view that are connected with individual ownership.

(c) Policies to influence the rate of return

The rate of return on capital could, in principle, be influenced by changes in the supply (the stock) of capital relative to demand. However, as a more speedy accumulation of capital in the private sector presupposes higher (expected) returns on capital, measures designed to increase the stock of private capital do not seem to be a promising way of depressing the return on capital! The issue is rather this: can private investors be induced or forced to accept a lower rate of return on their investment? If the risk on real investment is at the same time reduced, the answer should theoretically be "yes". Such a reduction of risk might very well already have occurred, at least if we compare the postwar period with previous periods, due to the dramatic dampening in the international business cycle, though the acceleration of the pace of technological change, and the increased international competition, in recent decades might have worked in the opposite direction. It is not obvious whether there are other ways (than reduced risk) to make individuals permanently accept a lower return on capital.[1]

In a *short-run* perspective, the possibilities of reducing profits, and the rate of return on capital, are higher - up to the point where unemployment, slower growth and/or balance-of-payments problems emerge. Examples of conceivable methods to achieve such short-run reductions in the rate of return on capital are: (1) actions that increase the degree of *competition* in the economy - for instance freer trade, higher internal mobility of capital and labor, freer entry of firms, anti-cartel and anti-monopoly policy, competing public enterprises, etc.; (2) *revaluation* of the exchange rate (reducing profit margins in the sectors with international competition); (3) *taxes* on the use of labor use of labor and other inputs, to the extent that these are not shifted forward onto prices (which is difficult for firms with international competition) or "backward" onto wages; (4) incomes policies, such as price and wage regulations, designed to raise wages relative to commodity prices.

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[1] However, as is well known, a fall in the profit share of national income can be generated in macro models through increases in the capital/labor ratio if the elasticities of substitution between labor and capital lie in a certain interval. (See also p. 359, footnote 2.)

It would, empirically speaking, seem that profit margins, and the rate of return on capital, have fallen in a great number of countries during the last decade. It is possible that this reflects a long-term reduction in risks. However, another conceivable reason is increased international competition, brought about by the internationalization of enterprises, and by the emergence of a number of "new" countries with competitive export sectors in manufacturing, such as Japan, and a number of Less Developed Countries, including Taiwan, Hongkong, South Korea, etc.[1]

c.1 Swedish figures

The fall in profitability during the last decades has been rather pronounced in Sweden - at least up to 1972; a rather low profitability level, historically and perhaps also relative to several other countries, was therefore reached during the early seventees. In addition to the above-mentioned "unplanned" developments in prices and wages, there was perhaps also a "deliberate" policy element in this profit squeeze in Sweden. Both the Confederation of Labor (LO) and the Government have occasionally argued, under the influence of the "labor-union economists" Gösta Rehn and Rudolf Meidner, that it would be advantageous from the point of view of both income distribution and resource allocation that profits were squeezed.

According to Chart 3, the labor share of total factor income, including imputed labor income for self-employed, increased from about 75 to about 90 percent during the period; private capital income (including retained earnings by corporations) fell correspondingly quite dramatically, approximately from 27 to 6 percent. (Social security fees have been included here in labor income; thus, such fees are regarded as payments for postponed incomes, mainly pensions.)

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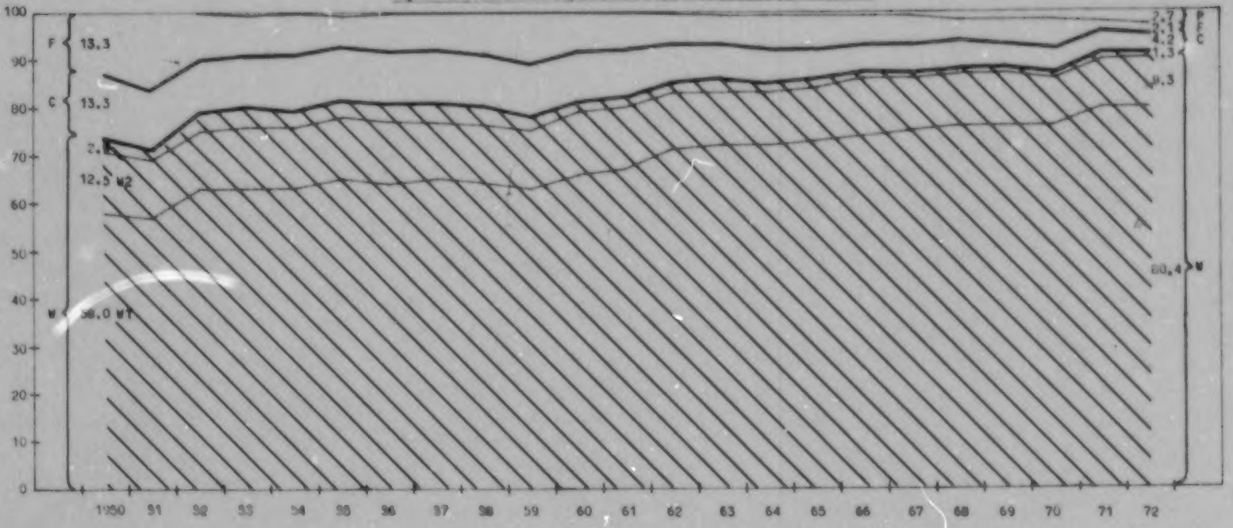
[1] The negative trend for profits during the fifties and sixties has probably not been the result of a deliberate government policy. The development can rather be seen, in particular for manufacturing, as the outcome of a rather "unplanned" development of international prices and domestic production costs, mainly labor costs. It would seem that labor costs per unit of output increased by more than 3 percent per year in manufacturing in Western Europe during the sixties, while world market prices rose by only about 1 percent [Economic Survey of Europe in 1971 Part II, p. 35, 1972, p. 45]. This contributed to an increase in the wage share of value added in manufacturing - from 63 percent in the late fifties to 71 percent in the late sixties (incomes of self-employed being classified here as capital income). It is still not clear if the "explosion" of world market prices in the early seventies has reversed this trend.

CHART 3

Distribution of factor income on labor income, capital income and factor income by public sector



W
- W1 = wages and social security fees
- W2 = entrepreneurial labor income
- W3 = labor share of residual item

C = Capital income; includes household incomes from interest, net, calculated capital yield of entrepreneurs and capital share of residual item

F = savings by firms

P = financial surplus in public production corporations and public authorities plus foreign factor income, net, plus public capital income, net

SOURCE: Central Bureau of Statistics, National Accounts

For individuals, capital income has, according to taxation statistics, fallen to about 2.5 percent of total factor incomes of income earners, if retained earnings are not imputed to individual shareholders. If retained earnings are imputed to individual shareholders, we obtain the previously mentioned figure of 6 percent for private capital income as a percentage of total factor income. It may also be mentioned that dividend payments from corporations (included in the 2.5 percent figure above) is about 0.5 percent of total factor income.

As a considerable part of capital income is rather dispersed - for instance income accruing to insurance policy holders and bank savers - capital income accounts for a very tiny fraction of the inequalities in the income distribution as a whole, as measured by conventional "overall" statistics on the entire income distribution. According to the 1970 Long-Term Report, only about 2 percent of the inequalities, as measured by the Gini coefficient, could be explained by the distribution of capital income (interest incomes and dividends) in 1966. Of course, capital incomes play a much more important role for specific groups of income receivers. In both the lowest income brackets (below Skr. 10,000) and in the highest (above Skr. 100,000), capital income (excluding capital gains) amounts to about 4-6 percent of total taxable income, whereas the figures hover around 1.5-3.5 percent in the income brackets in between. Only for the very high income group does a much larger fraction of total income consist of capital income.

Capital incomes are probably somewhat underestimated in all these figures, for instance due to the fact that they do not include capital gains (losses). However, it should be emphasized that capital gains - positive or negative - should be added to the income properly periodized (i.e. transformed from stock variables to income-flow variables) only to the extent they are not simply reflections of increased current returns (incomes) on assets. To the extent capital gains simply reflect increased current returns, that are already recorded in the income statistics, it would be "double-counting" to add the capital gain even if properly periodized to capital incomes. Thus, it is mainly capital gains (losses) due to higher (lower) expected future incomes on property, appropriately periodized, that should be added.

Most likely, the underestimation of capital gains is not very important for overall measurements of the income distribution, though it is of course important for specific individuals, such as some landowners close to expanding cities, and some house owners and shareholders, for whom great increases in expected future incomes may have resulted in increased asset values, but not (yet) current incomes.[1]

[1] Another example of underestimation of capital incomes is the item "imputed return" on owner-occupied houses, for which incomes, as defined for taxation purposes, are only 2 percent of the taxable value of the houses for most houses (though for more expensive houses the figure is 4, 8, and 10 percent, for additional taxable values); in fact, these imputed incomes are not even included in the figures above for capital income. The inclusion, at realistic values, of these capital incomes would probably "blow up" relative incomes somewhat for people particularly in a broad band around the middle and lower-middle parts of the income distribution.

(d) Problems

As there are not many empirical studies that shed light on the effects of wealth taxes and inheritance taxes - at least not in Sweden - it is necessary to limit the discussion to some general reflections, illustrated by numerical examples.

The effects on *work incentives* are perhaps not much of a problem - in the case of taxes on capital and inheritance - except for people who want to work hard to build up large private fortunes, and to create family dynasties, who have incidentally played a great role during the growth process in several countries, including Sweden.

A problem more specific for wealth and inheritance taxes is that increased difficulties for families to transmit physical and financial assets to the children would be expected to induce the parents to transmit human capital instead - by schooling and investment in human abilities in general [Husén, 1975]. This may not always be a disadvantage from the point of view of economic efficiency, but it certainly limits the effects of wealth taxes and inheritance taxes on the distribution of income and welfare of children. Another problem is the implications for *the entry and growth of enterprises*. This issue is interesting from the point of view of the effects on the distribution of income, as fewer entries of new firms will be expected to result in less competition and hence in higher profit margins; thus, measures which reduce the entry of firms may be counter-productive in the long run from the point of view of income distribution policy.

Moreover, the efficiency and general vitality of the economy may - and in my opinion certainly *will* - deteriorate, as many empirical studies (and common sense) suggest that newly established firms, and often small firms, play a very important role in the process of innovation in economies of our type. In fact, a characteristic feature of the very innovative economic development in Sweden during the last century has been just the role of new, and originally rather small firms, often organized as family enterprises.

Let us, as an example, look at a family-owned firm with Skr. 1 million in equity capital. Suppose that the owner wants to achieve a growth of the equity capital by 4 percent per year, to make viable a growth of the firm itself (in terms of output); also assume that the owner wants a modest level of consumption (Skr. 30,000 per year). Then, with the present system of income and wealth taxes in Sweden, this requires a rate of return on the equity capital of 12 percent before taxes [Johansson-Werding, 1970]. If also the passing of the firm to the children is going to take place, i.e. if enough capital is going to be accumulated during one generation to pay the inheritance taxes, for instance every thirty years, a rate of return of about 20-25 percent would be required - hence much above usual levels of return in Sweden; the rate of return on equity capital in Swedish firms (before tax) has during the last decade been in the neighborhood of 6-10 percent.

It is unclear whether family firms could flourish in the long run in a tax system of this kind - if they do not avoid taxes to a large extent by legal and illegal "loopholes", such as "cheating" in the income, wealth and inheritance statements and a considerable (legal) underestimation, for tax purposes, of the value of the assets owned by family firms. A government committee has, in fact, recently suggested that these (legal) underestimations should be increased further, to help family firms to survive!

These problems might be rather difficult to solve. A conceivable measure might be to let the owners of family firms pay inheritance taxes, and perhaps also wealth taxes, by IOUs to the government, with the property used as collateral. These IOUs could then be amortized during the lifetime of the new owner. Thus, at every partition of an inheritance, the government would get a new claim on the family firm, which the owner has then to amortize during his lifetime. However, a possible effect might be that family firms would be more and more dependent on the government, which might develop into the main creditor of the family firms. Would then one of the main attractions of family firms recede - their freedom of action?

These methods (i.e. paying taxes by IOUs) might be particularly important in agriculture, retailing, crafts and small-size manufacturing, where small firms and family firms play a particularly important role, and where the managerial skill to a large extent is taught within the families. It is perhaps the latter point which makes the strongest case for accepting a system where firms of this type are inherited from parents to children.

A more general problem is how much profitability, and the profit share of national income, for all types of firms, can be squeezed without severe reductions in the vitality and efficiency of a private enterprise system. It would seem that the fall in the return on equity capital of firms in Sweden from about 12 to about 6-8 percent (before taxes), and the fall of the private profit share of national income from about 27 to about 6.5 percent, during the fifties and sixties, caused some problems for the Swedish economy. One evidence pointing in this direction is that private investment developed rather slowly during the late sixties and early seventies (up to 1973), in spite of a rather strong increase in various selective subsidies to private investment. Moreover, employment in manufacturing fell considerably, as firms concentrated on cost-reducing (and often labor-saving) investment rather than on capacity-increasing investment. Moreover, balance-of-payments problems emerged. There is also evidence that the entry of new firms fell considerably during this period [Du Rietz, 1974].[1]

In fact there was a rather common judgement by Swedish economists around 1968-72 that the profitability of investment then was lower than what would be required for the economy to follow the previous growth trend (with 4-4.5 percent growth for GNP). Many economists and politicians (including the government) have, in fact, greeted the substantial increases in profits in 1973-74 with cheers for that very reason - though some observers believe that the profit increase in 1974 was perhaps unnecessarily large. It would seem that this strong increase in profits, and in the rate of return on capital, quite rapidly increased the willingness of firms - private as well as public - to expand their investment; and employment in manufacturing started to increase rapidly again.[2]

[1] The short-term variations in the rate of expansion of private investment do not seem to have been much influenced by shoft-term variations in profitability during the fifties when the rate of return was relatively high. Investment seems to have been much more sensitive when the rate of return was "low" during the sixties, and when the solvency of firms had fallen as a result of several years of rather low profits [Lindbeck, 1975].

[2] What happened was that world market prices "exploded", while labor costs in Sweden were kept down - by a three-year bargaining agreement (in 1971) and a rather "modest" wage increase in the bargaining agreement in 1974. One explanation for the relatively slow increase in wages was a very restrictive, unemployment-creating economic policy, implemented partly for balance-of-payments reasons, and for fighting inflation, but partly also because of poor economic analysis (an underestimation of the role of aggregate demand for full employment) and incorrect forecasts of the economic outlook.

(ii) *Conventional labor*

(a) Methods to influence wage rates

In the context of demand-supply models for the labor market, the authorities can influence wage differentials *either* by shifting the demand and supply curves for labor, *or* by changing the system of wage formation (the way wage rates react to demand and supply conditions). It is then important to make distinctions between long-term stationary equilibrium positions, short-term static equilibria and disequilibrium situations.

According to conventional demand-supply analysis for the labor market, wage rates tend to be equalized, in *stationary equilibria*, for jobs which are regarded as "equally" attractive and which require similar ability. Thus, in stationary equilibrium positions, four basic factors may be singled out to create wage differentials: differences in (1) the attractiveness and (2) the requirements of jobs; and differences in (3) the tastes and (4) the abilities of individuals. Moreover, relative wage rates will change in *short-run static equilibrium* positions, due to all circumstances that shift demand relative to supply in the various parts of the labor market; and in *disequilibrium* situations relative wage rates may change *either* because changed wage differentials fulfil the function of pulling labor to sectors with excess demand for labor from sectors with excess supply, or because of various interventions in the wage formation by the government or labor unions.

All this does *not* mean that relative wage rates are necessarily assumed to be *highly* flexible in the short run. There are, in fact, good reasons to assume that they are not. For instance, part of today's wage differentials reflects "historical" circumstances, such as demand and supply in the past, institutionalized by conventions in a hierarchically organized society, rather than *present* demand and supply conditions. Other factors are public legislation, and various kinds of "rigidities" and "market imperfections", behind which lie factors such as information costs, search processes and costs and disutilities of movements, etc. All this means that adjustments to new circumstances take time, in particular perhaps in the public sector with its often very rigid salary system.

An important but difficult problem is to what extent labor market organizations influence wages. *First* of all, they probably influence the trend of the general nominal *level* of wages, and hence the rate of inflation, and therefore also the wage share of national income - at least in the short run (at fixed exchange rates). *Secondly*, organizations may play a part in "helping" the market to find the wage relations that correspond to *actual* demand-supply relations. A realistic hypothesis is perhaps that labor market organizations achieve the greatest impact on the relative wage rates when they in this way "cooperate with the market", by tearing down social conventions and economic privileges from previous periods concerning wages and salaries. *Thirdly*, in the same way as historical and institutional "conventions" may cause deviations from equilibrium wage differentials, so can probably also labor market organizations make wage differentials deviate from equilibrium structures within certain limits. In other words, there is a certain "latitude" for the deviation of wage relations from the equilibrium structure, which can be exploited by the organizations without the disequilibrium being "too disturbing" for the functioning of the labor market. The same comments are relevant, in principle, for minimum wage legislation and similar types of public wage controls.

One factor that tends to make this "latitude" fairly wide is the practice by firms (to be discussed later, pp.287-294)to make variations in the "rationing" of job applicants, by changes in required qualifications rather than in wage rates for given jobs. Firms can also choose to change the amount of education and on-the-job training of new entrants within the firm, as well as to make working conditions and the job environment more attractive (less smoke, dirt, noise, etc.), rather than bidding up wages. The high tax rates nowadays in some countries even for moderate labor incomes may, in fact, make employees more willing than before to take out an increased standard of living in the form of better working conditions, which is a tax-free benefit, rather than higher money income which is heavily taxed. (See discussion below pp.321-323).

The analysis, so far, has been based on a demand-supply analysis, even though wage rate changes have been assumed not to be the only equilibrating variable in the labor market. An alternative approach would be to base the analysis on so-called "hierarchy models", whereby wage differences between individuals are "explained" by institutionally (exogenously) given hierarchical organizations within firms and administrative bodies. On the basis of this approach (used mainly perhaps by sociologists), it is often argued that wage differentials are "arbitrary" in the sense that they can be removed by legislation, by new conventions or by changes in the hierarchical structures of organizations. For instance, by reducing the number of "levels" within an organization, it may, according to this mode of analysis, be possible to reduce wage and salary differentials.

This approach can, in my judgement, most fruitfully be regarded as a *complement* to demand-supply models, rather than as an alternative, or contradictory, approach. For, even with a new organization will it be necessary, *in a system with freedom of individuals to choose their jobs*, to attract ("pull") people by wages and/or attractive working conditions. Reorganization of hierarchical structures may then be seen as a method to change the relative *attractiveness* and *requirements* of different jobs. If hierarchical models of wage differentials are seen in this perspective, they are quite compatible with a supply-demand analysis in the labor market, where job positions are filled by way of free choice of individuals in the context of a labor market, though the demand and supply curves may shift due to reorganization of the hierarchies. This means, however, that the consequences of wage regulations (*against* the market forces) - by way of legislation, bargaining or conventions - will not differ fundamentally from what can be predicted from conventional demand-supply models.

It is, in fact, possible to tie "hierarchy models" of wage formation even closer to conventional demand-supply analysis if we notice that behind the demand curve for labor lie rather *general* notions of the employer about the value for the organization of a particular employee. As this value is often difficult to measure, or even to define, in terms of the value of the marginal product, proxies for the value of the marginal product may very well be used, such as "the scale of operations" of the work performed by an employee, or the "sensitivity" of the organization to variations in his work performance [Reder, 1969]. This gives, then, a rationale for the often observed tendency for wages to be positively related *both* to the number of subordinates (or the size of the capital stock that is operated by an employee), *and* to the sensitivity (vulnerability) of the organization to variations in the competence of the employee in question. In this way, there is behind the demand curve for a specific employee, or a group of employees, an evaluation of his (their) contribution (on the margin) to the operations of the firm or organization. Superficially, this may look like "institutionally determined" wage relations in a "hierarchical structure", whereas a more careful economic analysis shows that the wage relations are, in fact, logically explained by simple economic-theory considerations, not different *in principle* from the general notions underlying demand and supply in the context of the labor productivity theory.

On the basis of these observations, there are a great number of alternative methods to influence wage differentials, each one connected with their problems and limitations:

(1) By changing the relative *supply* of various kinds of labor, for instance by (subsidized) appropriately distributed investment in human capital.

(2) By influencing the relative *demand* for various kinds of labor, for instance by way of *differentiated* taxes or subsidies on the use of labor of various types, and by pursuing a *full-employment policy*.

(3) By *removing barriers* to entry for employees, and hence increase the competition in the labor market, when monopolism and institutional obstacles have resulted in "rents" to certain groups of wage earners.

(4) By *wage policies of unions or government bodies*, designed to help the labor market to achieve an equilibrium wage structure (one type of "incomes policy").

(5) By *wage policies of unions or government bodies* designed to change wage relations *against* the market forces (another type of "incomes policy"). Minimum (or possibly also maximum) wage legislation could be an example of such policies.

(6) By changes in the relative attractiveness of and/or required qualifications for different jobs, including both *environmental improvements* and modifications of the *hierarchical organizations* within firms and bureaucracies.

The first four strategies may be said to be basically "in harmony" with the market forces; they are "market-conform" policies. Strategy 5 implies attempts to regulate wages against the market forces - "counter-market" policies.[1] Strategy 6, finally, means that the relative attractiveness of jobs is changed, which may be quite consistent with a "market-conform" approach, though the institutional setup is restructured.

(b) Criteria for wage policies

Two basic, and partly conflicting, principles of wage-distribution policies have for a long time been the "utility approach" and the "efficiency approach" - the former being illustrated by the slogan "to everybody according to his needs", the latter by the slogan "to everybody according to his contribution (or ability)". It is probably correct to say that the utility approach (or the utilitarian approach), with the heritage going back at least to Bentham, is usually assumed to have considerably more egalitarian implications than the efficiency approach; this would suggest that "needs" are usually assumed to be more equally distributed than "abilities".

Sometimes it has also been argued that the utility approach supports the idea of complete equality of income - such as when it is assumed either that everybody has identical tastes or that tastes are randomly distributed, with the inference (for instance by Lerner) that *expected* utility (under uncertainty) is maximized in a society if everybody has the same income. In my judgement, this argument cannot be accepted; it is most likely that individuals differ both *considerably* and *systematically* in taste. In fact it should, at least to *some* extent, be possible to infer revealed preferences from observations of the choice by individuals between leisure and various kinds (and intensity) of work. Thus, equal money incomes would in fact mean inequality of welfare, or to quote Milton Friedman:

> "Given individuals whom we are prepared to regard as alike in ability and initial resources, if some have a greater taste for leisure and others for marketable goods, inequality of return through the market is necessary to achieve equality of total return or equality of treatment. One man may prefer a routine job with much time off for basking in the sun to a more exacting job paying a higher salary; another man

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[1] These two terms have been borrowed from [Meidner, 1970].

> may prefer the opposite. If both were paid equally in money, their incomes in a more fundamental sense would be unequal. Similarly, equal treatment requires that an individual be paid more for a dirty, unattractive job than for a pleasant and rewarding one. Much observed inequality is of this kind. Differences of money income affect differences in other characteristics of the occupation of trade. In the jargon of economists, they are 'equalizing differences' required to make the whole of the 'net advantages', pecuniary and nonpecuniary, the same." [Friedman, 1967, p. 39].

The only doubtful part of this quotations is probably the statement that "much observed inequality is of this kind". That must, as already indicated (pp.249-50), depend very much on which country and what time we are talking about. In fact, a crucial problem in income distribution analysis is exactly to try to find out how much of existing income differences that are of this kind.

There are also a number of "statistical" factors that create "measured inequality" of current money income, due to conventional ways of recording incomes. Obvious examples are differences in the number of hours worked, age, geographical differences in costs of living, differences in expenses required to earn incomes, differences in amount and timing of investment in human capital, different number of persons who live on the income - and perhaps most of all, differences in the timing of incomes, as some people have a flat, others a rising or falling income profile over time. Moreover, also short-term, year-by-year fluctuations in income tend to exaggerate differences in living standards, when yearly income figures are used, as compared to an analysis that is based on some concept of "permanent" or "lifetime" income, or some other type of multiperiod concept of income. Non-monetary advantages, barter of goods and services, and returns to do-it-yourself work may also "distort" income distribution statistics - both phenomena with rather uncertain effects on the measured vertical and horizontal income distribution (see also pp. 321-325).

When all these considerations are taken into account, it is clear that figures on yearly money income (in particular before taxes and transfers), without adjustments for number of persons, must be a very poor proxy for welfare, and even for the "economic resources" and purchasing power available to the individual, in particular for aggregate data for the entire population that include full-time middle-aged employees; part-time employees of various ages; students, pensioners, and persons who have been in the labor force, or in the country, only part of the year, etc. Maybe a main task of the economist should be to warn everybody against using statistics on yearly money incomes in distribution policy analysis, in particular without disaggregating the figures on rather homogeneous groups in terms of age and number of working hours?

(c) Policies to influence the ownership of human capital

"Conventional labor income" would seem to account for about two-thirds of total factor income in most highly developed market economies of the West, if the entire incomes of self-employed are classified as capital income - and 75-90 percent if, as should be done, imputed labor income for self-employed is included in the measure of labor income.

As a considerable, though difficult-to-quantify, fraction of "conventional labor income" can be regarded as return on human capital, three obvious ways of influencing "labor incomes" of low-income groups are: (1) by increasing their earning capacity (relative to other groups) by investment in human capital (better health, education, and on-the-job training); (2) by increasing their capacity utilization (relative to other groups), i.e. higher and more effective employment; and (3) by raising the wage rates for low-income jobs (with given qualification requirements).

Available studies from several countries indicate that differences in working time (for instance hours per year) and wage differentials probably are of about the same importance as explanations for differences in earnings (factor incomes) among individuals. Moreover, unemployment and sick leave seem to be particularly important factors behind a short working time.[1] We are probably also entitled to say that health, education, work experience (reflected largely in age) and sex (in some countries race as well) are the most important general factors, such as schooling, on-the-job training, IQ and family background, behind (long-term) wage rate differentials between individuals. However, it would seem, from available studies on micro data, that it is difficult to explain much more than half of the wage rate differences, and much less of the yearly incomes, by such general factors. A considerable part of the observed differences in wage rates, and in particular in yearly income between individuals seem to be related to interindividual differences in personal characteristics, i.e. differences in "natural abilities", such as intelligence, common sense, reliability, initiative, energy and personality in general.[1]

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[1] For references to Swedish studies in this field see p. 283-285 .

Granting the difficulties and disadvantages of changing the age, sex, and race of individuals (!), available empirical research suggests that (1) full employment policy, (2) properly distributed investment in human capital through education, on-the-job training and health care, and (3) the removal of discrimination on the labor market, perhaps in particular of women (and in some countries of ethnical and racial minorities as well) are potentially promising methods of reducing the inequalities in the distribution of factor income. Perhaps public and professional discussion and analysis of investment in human capital have so far tended to put too great an emphasis on schooling relative to both on-the-job training and improvements in health, particularly for the low-income groups. Smaller dissimilarities in efficiency and profitability of firms would also tend to reduce wage differences of employees in various firms.

A high level of employment presumably requires both a skillful management of aggregate demand (a "Keynesian" macro policy) and, in the short run, some selective policies to boost employment in specific sectors, including attempts to increase the mobility of the factors of production. In the case of investment in human capital, it is important to emphasize that it is the distribution of the investment that counts, rather than the total volume of investment in human capital in society. It is also likely that the type and quality of education, in addition to the number of school years, influence incomes considerably. Available international studies - for instance by [Duncan, 1968; Kohn,

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[1] See [Mincer, 1974] for U.S. figures, and [Holmberg, 1970] for Swedish figures.

1969; Jencks, 1972; Hauser-Sewell-Lutherman, 1973; Bukock-Fägerlind-Emanuelsson, 1974; and Söderström, 1971] - suggest that income differences are related "more" to occupation than to education, when both variables are included as explanatory variables. This is hardly surprising, as we would expect that it is through higher paid occupations that education influences income. In fact, if two persons with the same occupation have different education, we would expect that the one with less education usually has greater "natural abilities", and there is no reason to expect that he would have a lower income than the other person with a higher education (and poorer natural abilities).

It should be added that the only productivity-increasing effect of education is not to increase the efficiency in work. Another important aspect is that education presumably increases the ability of an individual to be informed about his "rights" in society - to bargain with his employer, to take care of his legal rights, to be able to talk to authorities, to fill in forms, etc. These abilities are probably getting more and more important the more complicated and bureaucratic society becomes - in particular perhaps within the expanding public sector.

More generally, we may argue that a considerable number of the present inequalities of welfare are related to inequalities in the distribution of information - not only of general and job-specific skills relevant for work, but also acquaintance of "influential people", knowledge of how to approach authorities - and, of course, knowledge about alternative job positions and investment opportunities. Thus, a successful redistribution policy should probably rely heavily on increasing information generally among underprivileged people. Moreover, underprivileged people, and those with a lower education, have probably much to gain if the social and economic systems are kept as simple as possible. The trend in many countries today is just the opposite, due to more and more complex legislation, and bigger and bigger bureaucracies in the social and economic fields.

Measurements of the return on investment in human capital, and the effects of such investment on the distribution of income, is still a highly controversial issue in the scholarly literature. In the most comprehensive studies for the U.S. so far, the studies by Jacob Mincer, schooling seems to explain about one-third of the individual differences in *wage rates*, whereas accumulated investment in "human capital" as a whole, defined as schooling *plus* post-school work experience, explains about two-thirds [Mincer, 1974]. The same studies claim to have shown that over 75 percent of the relative skill differentials in wage rates (of close to 500 male employees in the U.S. in 1959) can be explained by the distribution of human capital. Other, in my judgement much less reliable, studies have indicated less influence of schooling on wage rates and income, often less than 10-15 percent of the variance in incomes among individuals.[1] There are several reasons for the low "influence" of education on the distribution of individual incomes asserted in these other studies: that on-the-job training has been neglected; and that appropriate adjustments have not been made for differences in hours worked, and for the age of the individuals.

Unfortunately, all studies in this field are plagued by possible biases, in various directions, which the authors may not have fully succeeded in removing, or perhaps even discovering. This is perhaps particularly the case if the effects of schooling on incomes are interpreted as taking place via a *productivity* increase of the individual. For instance, we would expect an *upward* bias for figures over the "effects" of schooling on earning capacity (via higher productivity) to the extent that the number of school years reflect a "screening effect" of "inherent abilities and attitudes" (which may not have been fully taken into account in the studies) rather than a productivity-increasing effect of education. The studies may also include some downward biases for the estimates, however, to the extent that education gives a "consumption effect" during the period of education, or more likely perhaps afterwards. For instance, schooling may change the preferences of individuals in favor of non-monetary variables, which means that investment in human capital will influence earning capacity more than actual money earnings.

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[1] For instance, a widely quoted study has found that only about 20 percent of the variance in earnings is explained by schooling, IQ and parental background [Jencks, 1972]. Another well-known study found that each additional year of schooling for white males (23-34 years old) gave approximately 300 dollars, i.e. about 5 percent, additional yearly income [Hanoch, 1967].

For Sweden, Per Holmberg tried, in a regression analysis, to relate income differences to education, age, branch and region. According to this study, people with academic degrees would have about twice as high a salary as the average, when the influence of age, branch and region has been eliminated. Seven years of schooling only would, by contrast, according to the study, be "connected" with a salary of about 86 percent of the average, when the importance of the other (studied) factors is eliminated. (Table A:3 in the Appendix gives a partial regression coefficient for education, expressed as the "effects" of education on the deviations from the average income.)

(d) Swedish figures

Let us look briefly at the distribution of wage-income, and income in general, in Sweden and its change over time, starting with two aspects on the horizontal distribution, namely wage differentials between different industries for manual workers, and between skilled and unskilled labor. It would seem that wage differentials among manual workers in different industries have been rather stable during most of the postwar period (after the narrowing that took place during the Second World War), except for the very recent years, when some reductions in wage differentials between branches appear to have occurred (Chart A:2 in the Appendix). In fact, it would seem that about 30 percent of the wage dispersion among workers in different branches has been removed during the last five years [Meidner, 1973].[1] It is possible that this reduction in the dispersion is a combined effect of two factors: a strong "low-income profile" in wage bargaining (a so-called "solidaric wage policy") by the labor unions (and the government) during recent years, and unusually high unemployment in manufacturing (in 1971-73), which reduced "wage drift" during these years for skilled workers in some manufacturing industries. It remains to be seen if the equalization brought about during these years is a permanent or a temporary phenomenon.

Also wage differentials between skilled and unskilled labor have fallen in Sweden. It would, in fact, seem that such differentials are now smaller in Sweden than in most other countries. According to information published by the Swedish Employers' Confederation - apparently the only available figures - such wage differentials would be only half as high in Sweden as in most other West and, even smaller relative to East European countries.[2] Available statistics also indicate that wages for manual workers have increased considerably relative to nonmanual workers. In fact, the wages for workers in manufacturing have since 1967 to 1973 increased by about 12 percent relative to non-academic white-collar employees, and by 38 percent relative to state-employed academic persons.

[1] Measured as the change, between 1968 and 1972, in the "maximal equalization coefficient" within the bargaining area of LO and SAF.

[2] SAF (the Swedish Employers' Confederation), [SAF, 1973].

Thus, a look only at wage differentials would suggest that the distribution of factor incomes for men would be expected to have been fairly unchanged during most of the postwar period, but that some equalization has occurred during very recent years. However, changes in the composition and allocation of the labor force may have modified the outcome on the vertical distribution of wage income. For instance, the contraction of some low-wage sectors and firms should have evened out the distribution of wage income, whereas immigration of unskilled and semi-skilled workers perhaps should have worked in the opposite direction. The expansion of the number of white-collar workers relative to blue-collar workers may also have influenced the "overall" distribution of labor income, though in a rather complex and unknown way. Moreover, the great variation in inter-individual factor incomes, even for people in the same industry, will limit the effects of the developments of wage differences among industries and skill-groups on the vertical distribution of overall factor incomes.

The Lorenz curve in Chart 4 A for men (over 20 years of age) suggests that these various, partly opposing influences have in fact largely cancelled in their effects on the overall vertical income distribution [Selander-Spånt, 1969] - at least up to 1971. (See also Table A:8 in Appendix.) The position of the curve was very much the same in 1971 as in 1958. In fact, the curve looks rather similar to Lorenz curves for other countries in Northwestern Europe - such as other countries in Scandinavia and in the U.K. [Incomes in Postwar Europe, 1967.] Thus, the vertical distribution of factor income among men in Sweden does not seem to differ significantly from other Northwestern European countries.

A Lorenz curve for men plus women would be expected to show more clearly a tendency to an "equalization" of incomes. The reason is that a great number of married women went out onto the labor market during the last decade. As a matter of fact, the fraction of married women with at least half-time work outside their homes has increased from about 25 to about 50 percent during the last fifteen years. As a result, a large number of women have moved from zero-incomes to some positive incomes. This is probably the reason why the Lorenz curve for all men plus all women has shifted upwards between 1951 and 1971 (Chart 4 B). (If the curve had been based only on people who are recorded in the taxation statistics, there would have been a shift downwards of this Lorenz curve, suggesting - "falsely" - increased inequalities. The reason is that a number of women have moved from zero incomes to incomes considerably below the average; this is why, in Charts 4 A and B, we have, by schematic calculations, included all people with incomes from zero and upwards, thus even those with incomes below the minimum income included in taxation statistics.)

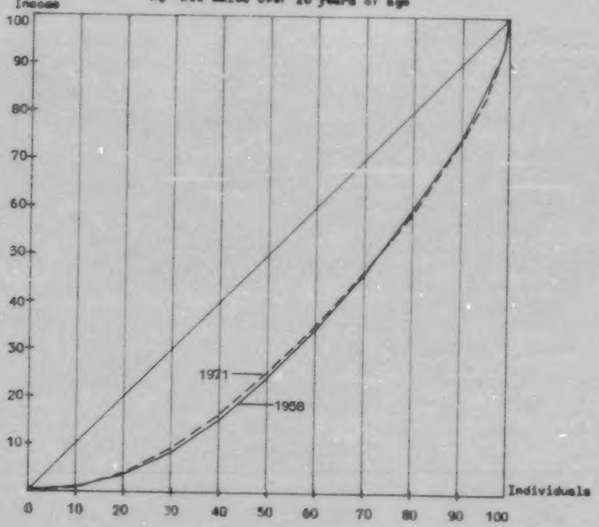
Studies by Per Holmberg for Sweden, in the context of the publicly appointed so-called Low-Income Committee, indicate, on the basis of a multiple correlation analysis, that about half of the differences in wage income can be "explained" by differences in working time - the other half being "explained" by wage differentials [Holmberg, 1970]. This conclusion was largely confirmed in a study for 1967 by Lars Söderström [Söderström, 1971].

The two most important factors "explaining" few working hours would, according to Holmberg's study, be sick leave and unemployment. Perhaps we can draw the conclusion from this that few working hours, at least among men, depends more often on a low working capacity than on high preferences for leisure. According to Holmberg, more

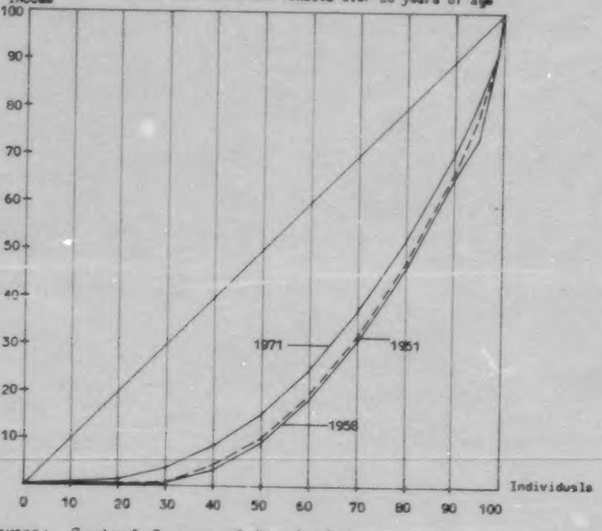
CHART 4

Lorenz curves for vertical income distribution before tax in Sweden

A. All males over 20 years of age



B. All males and females over 20 years of age



Source: Central Bureau of Statistics, Beräkningar av medelvärden, deciler, samt de bägge inkomstspridningsmåtten maximala utjämningskoefficienten och koncentrationskoefficienten för perioden 1951-1971, Stockholm 1973.

than 1.2 million people lost more than two weeks of working hours in 1966 (a rather "normal" year in terms of employment) due to sick leave - about 30 percent of the labor force. Working hours were lost through unemployment of 400,000 persons, i.e. about 10 percent of the labor force.

Health, education, profession, age and sex are, according to these studies, the most important (of the studied) explanatory variables for wage differentials among individuals (micro data) in Sweden. The studies by the Low-Income Committee also indicate that the frequency of low-wage groups varies considerably between branches. Table A:1 in the Appendix summarizes its findings concerning the distribution of unemployment among different socioeconomic groups; the data express the fraction of the population in different socioeconomic strata that has experienced unemployment some time during the year (1966).

Lars Sundbom, also in the context of the Swedish Low-Income Committee, has made some studies of people with, what he calls, "extremely low wages" [Sundbom, 1971]. Sundbom defines the concept as an hourly wage rate of less than Skr. 7 per hour (in 1968), which means that about 15 percent of the employees had wages below the stated level. Two-thirds of these people were females. 8 percent of all males belonged to the groups of people with "extremely low wages", and 26 percent of all females. One out of three was below 20 years of age. Table A:2 in the Appendix gives the share of employees in various sectors with "extremely low incomes" as defined here. As is seen from the table, the frequency is particularly high for housework, but it is also high for hotels and restaurants, hygiene and some personal services. There are also fairly high figures in agriculture and forestry, food industries, and manufacture of non-metallic mineral products and retailing. Only one-third of the extremely low paid are unionized, as compared to three-quarters of other employees.

People were also classified according to three social groups, corresponding roughly to upper class, middle class and working class. Social group I, making up approximately 8 percent of the population, includes mainly managers in large firms, professional people and higher public servants; social group II, making up 35 percent of the population, comprises owners of small firms and "middle groups" such as technicians and lower and mid-level white-collar employees; social group III, making up 58 percent of the population, consists mainly of workers and "small" peasants. The number of people in the group with extremely low incomes was negligible for "social group I"; it was 8 percent for social group II and 19 percent for social group III.

The average income of people with extremely low wages was Skr. 7,400. As the "potential" full employment yearly salary for people with Skr. 5 per hour would be Skr. 11,000 (in 1967), it would seem that people with extremely low incomes are working, on the average, not more than perhaps two-thirds of a normal working time. On the average. their factual income per year is about one-third of the average.

However - and this is important from the point of view of economic welfare - on a family basis, their situation is much better; they live in households where total disposable income is "only" about 20 percent below the average for households.

(e) Marginal and non-marginal investment in education

It may be worthwhile to discuss, somewhat more analytically (theoretically) the likely effects on the distribution of wage income of schooling and on-the-job training. Let us start with the case where the investment is small enough to validate the assumption that total demand and supply for labor of various kinds is (approximately) unaffected. Investments of this type shall be called "marginal". This case may be described as a policy that changes the distribution of the ownership of human capital at given returns. Later on, investment that does influence the return - "non-marginal" investment - will be considered. (See [Magnusson, 1971] for this distinction.)

e.1 Marginal investment

Marginal investment implies, schematically speaking, that some income receivers are "moved up" in the frequency distribution of income at unchanged wage rates for each type of job. Whether this should be regarded as leading to a more or less "equal" distribution depends, of course, on the two factors: (1) who pays the returns on the investment, and who receives the returns; and (2) what we mean by "more equal". If the investment in human capital takes place for people at the bottom of the income distribution, moving them up closer to the middle, the income distribution would be expected to change as illustrated by the shift from the solid to the dotted curve in the left part of Chart 1a - if the return is higher than the cost for the individual. Most people would probably regard this as a movement to a "more equal" distribution.

A (marginal) investment in human capital for individuals who are originally somewhat above the average, moving them closer to the top of the distribution, would be expected to change the distribution as illustrated by a shift from the dotted to the solid curve in the right part of the same chart. Perhaps most observers would agree to regard this as a movement to a "less equal" distribution.

The first type of investment could perhaps be identified with vocational training for people with little skill, or possibly high-school education, whereas the second type of investment could perhaps be identified (in most countries) with university training, in particular specialized "professional" academic training, for people who would otherwise become middle-class white-collar or blue-collar employees. How should (marginal) investment in human capital for middle-income groups - just around the average - be regarded from the point of view of the objectives of distribution policy? The effect would, in principle, look like a shift from the dotted to the solid curve in the right part of Chart 1b. Perhaps most observers would regard this as leading to a "less equal" distribution.

Thus, in conclusion, we have to specify very carefully both the distribution of educational benefits and our social preferences function before we answer the question about the effects on the income distribution of more education.

e.2 Non-marginal investment

The consequences for the income distribution are much more complicated in the case of nonmarginal investment in human capital. There will now be (at least) two additional effects of the previously mentioned "movement" of individuals from one education- and income-level to a higher one. First, wages will tend to increase for education groups, for which supply dries up relative to groups where supply expands. Second, employers will adjust their standards concerning required qualifications of the job applicants - by reducing the qualification requirements in submarkets with tendencies to excess demand and by increasing the requirements in submarkets with excess supply, a kind of "job-rationing effect". For, as in some other markets of the economy, such as the markets for credit and capital goods, we would (as already suggested; p.266) expect that a change in the price is not the only adjustment mechanism in disequilibrium situations. In fact, this is perhaps particularly likely to be the case in the labor market. One reason is that wage changes, in particular of course wage reductions, are connected with psychological and social problems concerning labor-management relations. A second reason is the existence of strong organizations in the labor market. And a third reason is that firms which adjust the qualification requirements for job applicants can simultaneously change the scope and intensity of internal education and on-the-job training. For instance, a firm may, in a situation of excess demand for a specific type of labor, prefer to accept job applicants with lower qualifications (than earlier) and pay for their education and on-the-job training, rather than bidding up the wages of those who already have the "right" qualifications, which may be more expensive for the firm, as then also those who are already in the firm may demand the same wage increase.

Thus, an analysis of the effects on the income distribution of changes in demand and supply of labor with different levels of education would be too restrictive, and may occasionally be misleading, if changes in wage rates are assumed to be the only adjustment mechanism in disequilibrium situations on the labor market.

Let us, for the purpose of the subsequent discussion, assume that there are four levels of education in a country: level I (for instance defined as at most seven years of schooling - "elementary school training"); level II (for instance eight to nine years of schooling - "grade school training"); level III (for instance ten to twelve years of schooling - "high school education"); and level IV (for instance more than twelve years of schooling - "college and university training"). Let us also assume that these levels approximately correspond to four consecutive segments of the income distribution, as described in the context of Chart 1.[1]

Suppose that a publicly financed investment in human capital is made for some people belonging to the I-level education group, who will then experience increased earnings. As long as nonprice adjustments in the labor market are neglected, we will expect increased earnings also for those who remain in the I-level group, as the supply "dries up" among people with this education. At the same time, wages will tend to fall among people with originally II-level education, as the supply of people with approximately this level of training will increase. Thus, the earlier discussed shift from the solid to the dotted curve in the left part of Chart 1a of the vertical income distribution is accentuated by the effects on wage formation.

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[1] Jan Tinbergen has worked recently with a demand-supply model of several different levels of education, though he seems to restrict himself to the price (i.e. wage) effects, without considering the "rationing effects" [Tinbergen, 1973].

The picture has to be modified somewhat if we consider also the non-price ("rationing") adjustments, i.e. induced changes in the required qualifications for job applicants. More specifically, we would expect that some people with II-level education now have to accept jobs that were earlier done by I-level people. This is simply another mechanism by which the earnings of II-level employees will tend to fall. A more important modification is that some people in the "higher echelons" with I-level education will now be pushed down to less qualified jobs because of the increased availability of people with II-level training. Thus, the qualitative conclusions presented above have to be modified on one point: some "higher echelon" groups among people with I-level education might experience a fall in their earnings, which modifies the earlier discussed equalization effects of investment in human capital for low-income people. Similar effects will occur in the case of education for other levels.[1]

It is, of course, of interest to analyze the effects of other distribution of education in a similar way. For instance, let us suppose that non-marginal investments take place for people with originally III-level education, increasing the number of people with IV-level education and reducing the number of people with III-level education. As long as only "pure" wage adjustments are considered, earnings will tend to increase not only for the benefactors of this investment, but also for those who remain in the group with III-level education, while people who already previously had IV-level education will tend to experience a fall in their earnings. The fall in earnings for the IV-level education group is accentuated by the fact that some people with IV-level education now have to accept jobs that were previously done by III-level people. However, another effect of the "up-grading" of requirements is that some people in the "higher echelons" of the groups with III-level education will be pushed down to less qualified jobs, and possibly experience a fall in their earnings. The latter effect modifies the equalizing effects on wage rates of the non-marginal investment in human capital.

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[1] In a study by Lester Thurow [Thurow, 1972], the price (wage) effects and the rationing effects are treated as belonging to two different models with different conclusions in each, rather than as the combined effects of two simultaneously operating mechanisms in the same model, as is attempted here. The price effects were analyzed by what he calls a "wage competition model", and the rationing effects by what he calls a "job competition model".

Similar considerations hold for investment in human capital that moves people from II-level to III-level education. There will tend to be an equalization of income for people belonging to the education levels II relative to III, except that wages for some higher-echelon people in level II will tend to fall because of stiffer qualification requirements when the number of III-level people goes up.

Thus, before anything has been specified about the *distribution* (and financing) of investment in education, not much can be said, in general, about the *effects* on the distribution of income. Moreover, how we *evaluate* the effects depends very much on our attitudes towards the increase in incomes for those who get more education relative to those who are already in the higher-education group, as well as how we evaluate the effects on incomes of the lower-echelon and the higher-echelon groups among people who do *not* obtain further education (the first one likely to get higher, the latter likely to get lower wages).

Moreover, it is obvious that *the difference among individuals* in their ability to absorb training is so large that *inter-individual differences*, within all education groups, may increase considerably also among those who obtain more schooling and training. The educational system may, so to speak, have *a leverage effect* on the personal abilities of people, and this leverage effect may differ enormously among different persons. Thus, even if appropriately distributed investment in human capital may even out the distribution of human capital between *certain aggregates* (segments) of the population, *inter-individual differences* in abilities may increase in a great number of cases.

The problem is accentuated if, as seems likely, there are systematic differences in this leverage effect on children from different homes - in addition to the influence of inherent abilities (such as "early IQ" etc.). For instance, let us *assume* that the effects of education are stronger for children from families with "high professions" and higher education (assumed to have relatively high incomes as well). Then a *general* expansion of education *could* conceivably result in more rather than fewer inequalities in earnings, as the effects of the educational inputs may increase the scholastic abilities more for children from high-income groups than for children from low-income groups.

Technically speaking, let us assume a production function for scholastic abilities of the form A = f(S,F), where A = scholastic abilities, S = school inputs and F = parents' scholastic abilities, the latter possibly correlated with income. Our hypothesis is then that the partial derivative $\frac{\delta f}{\delta S}$ is an increasing function of F, ($\frac{\delta f^2}{\delta S \delta F} > 0$), and that increases in S, as being actually financed, result in increases in life income. This point emphasizes, again, the importance of how an expansion of investment in human capital is distributed among different individuals and social groups.

It was earlier pointed out that subsidization of investment in physical capital is not, in the long run, a very promising way to reduce the private return on capital, as investment incentive falls by lower returns. We may, after a while, run into a somewhat similar problem in the case of investment in human capital as well: falling (private) return on investment in human capital may sooner or later reduce the interest in undertaking such investment. The volume may, of course, be kept up by public subsidies to this type of investment. However, if people are not willing to accept a reduced private return on human capital, the fall [illegible] earnings in response to increased supply will, in a long-run perspective, not more than offset the value of the increased subsidies; the mechanism for this offsetting process is, of course, that the demand for (higher) education will tend to fall if the capital value of reduced earnings on higher education tends to be greater than the capital value of the subsidies.

There may be some basic differences, however, between subsidies to investment in physical capital and in human capital. For instance, it is perhaps easier to achieve a dispersed ownership of human capital than of physical capital, as the former is embodied in millions of individual human beings. Moreover, there may presently exist considerable "rents" for some professional groups where entrance barriers to specialized higher education have for a long time limited supply. In such areas, increased education could have considerable effects on the earnings of the group concerned without any tendency to a fall in the supply of persons with such education; physicians, dentists, engineers, etc. are good examples of such groups in many countries.

The income-distribution effects of education (including on-the-job training) are probably most obvious where low- or middle-income groups experience an increase in their *productive capacity* by way of the better education; in this situation we would expect an income redistribution effect in the case of both marginal and non-marginal investment. In the case of marginal investment there will be effects on the earnings of an individual even if education functions *only* as a "screening device" for "natural abilities"; employers may expect a higher return, and smaller risks, among the groups which now have certificates of successfully completed higher education, and hence pay more, at least initially. The issue is more complicated in the case of *non-marginal* investment. However, *some* income redistribution effects would probably occur also here, as employees with more education would be expected to itensify their search for employment among higher-paid jobs.

It is important to point out that the whole discussion above has assumed a *given* demand side for people with different education. Thus, the discussion relied on a comparison of two income distributions at a given point of time, at alternative levels and distributions of education, but with given *demand* for people with different education. What the development will be *over time* depends, of course, also on how the *demand* for various skills and abilities develops relative to supply. To some extent, the development in demand is independent of what happens on the supply side. In that case, the *effects* of changes in education will be stated above, regardless of whether demand actually changes or not, as the effects have to be defined as the difference between two stages (or paths) - one factual and one hypothetical. However, it is *possible* that increases in supply will *to some extent* tend to enlarge demand (in the sense of a shift in the demand curve for educated employees), as *information* about the usefulness of educated people might increase when the number of educated people in society becomes greater. For instance, people with a certain education may try to employ others with about the same education. This would tend to reduce the equalization effects of investment in human capital.

One basic reason why the large increase in the *volume* of education during the last two decades in many countries does not seem to have gone hand in hand with any (substantial) equalization of the distribution of factor income is probably that the *distribution* of education among the stock of people has not changed very much [OECD Study 1974]. One reason why the distribution of education has not become much more equal in the West-European countries is that relatively low educated foreign labor has increased its share of the labor force during the post-World War II period - constituting about 25 percent of the labor force in Switzerland, 12 percent in West Germany and 7 percent in Sweden, but less than 1 percent in Norway - to mention some examples on the spectrum for high- to low-imigration countries.

Because of these circumstances there is no reason why we should expect that the distribution of factor income should have changed very much. If we also argue that the demand for educated people has most likely increased over time, owing to the technical and institutional development, it is quite natural, and follows from simple demand-supply analysis, that the distribution of factor incomes has not become appreciably more equal during the course of the post-World War II period. It would be a misuse of price theory to assert that demand-supply analysis "does not hold" for the labor market because the distribution of factor income has not been equalized along with the increase in the volume of education (due to the modest change in the distribution of education, and to the increase in demand for skilled people).

There are, however, as already suggested (p. 265-66), some possibilities of deliberately influencing the demand for various types of labor - for instance, by subsidies to labor costs for firms using handicapped and people with little education, and taxes on the use of employees with long and expensive education. Such policies could be an important alternative, or complement, to attempts at influencing wage rates by bargaining, incomes policy, and minimum wage legislation. In particular, taxes/subsidies are consistent with a high level of employment for people with low education and/or various kinds of handicaps, whereas "solidaric wage policies" and minimum wage legislation often tend to create unemployment for the groups that are supposed to be helped. In terms of the previously presented terminology (p. 275) tax/subsidy programs to influence the distribution of demand for various types of employees (method 2 on page 275) are "market conform", whereas the three instruments just mentioned (corresponding to method 5 on page 275) often have to be characterized as "counter-market" policies.

Studies of *micro data* shall perhaps never be expected to explain the bulk of the differences in income by the help of "general" variables, such as education, on-the-job training, family background or even IQ. There are so many *individual* differences in personality that create disparities in income which can never be explained by "general" factors such as these. We would expect, as always in the social sciences, that "general" variables, such as education, are more effective in explaining differences between *groups* of individuals, rather than in explaining inter-individual differences in micro data. By way of comparison, income explains the bulk of differences in consumption between large *aggregates* of individuals, even though it offers an explanation for only a small fraction of *inter-individual* differences in consumption; in fact, yearly income seems to explain only about 10 percent of the inter-individual variance in consumption in a country such as Sweden [Thore, 1959].

What is remarkable then is not that many scholars, such as Jencks [1972], have been unable to explain more than perhaps 10 percent of variance in income by education on the basis of *micro data* but rather that others, such as Jacob Mincer [1974], have been able to explain at least half of the variance in income by the schooling, on-the-job training and the number of hours worked.

Moreover, the fact that differences in age, preferences and personal characteristics that are not well caught by IQ tests may be responsible for a larger fraction of income differences than is education, is in no way a proof that changes in the distribution of education cannot have important *effects* on the distribution of income; after all, education can rather easily be changed by policy actions, whereas age cannot, and IQ and preferences may be difficult to influence in a predictable way. Thus, even though recent studies on micro data warn us about the limitations of education in income distribution policy, the "pessimistic" conclusions by Jencks [1972], Thurow [1972] and others are, in my judgement, not warranted! Even if only a modest fraction of the variance in income could be explained by education on micro data, that would *not* necessarily mean that the partial derivative of income with respect to education is small for individuals, or groups of individuals, relative to what is required for using educational policy as a tool in redistribution policy.

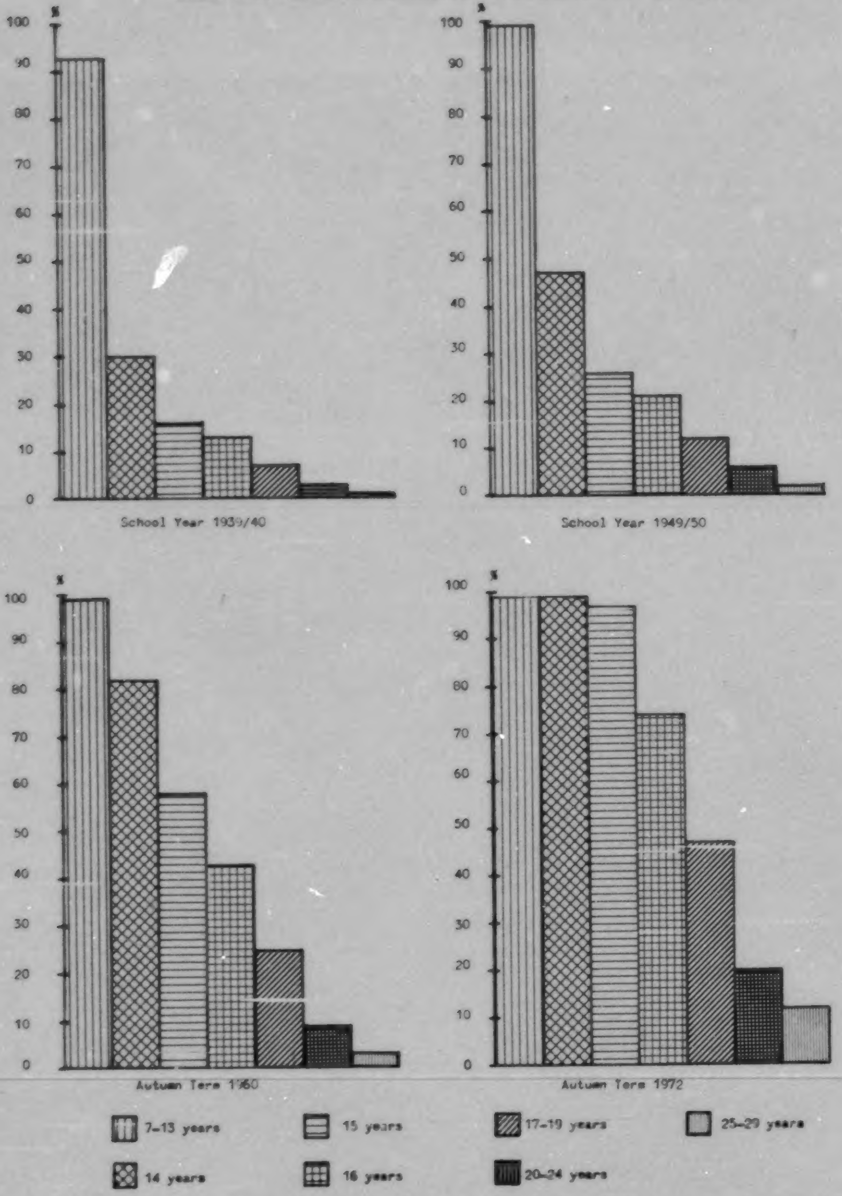
e.3 Swedish experiences

Almost any country could be used as an illustration of the expansion of investment in human capital during the last decades. *In Sweden* the expansion of expenditures on education has been about 5.4 percent per year in real terms; these expenditures have increased from about 3 percent of GNP in 1950 to 6.3 percent in 1971. For health - another important component of investment in human capital - the expansion in real terms has been 6.3 percent per year during the same period; the fraction of GNP of these expenditures has increased from 2.3 to 6.4 percent.

The expansion of education may also be described by figures over the fraction of people in various age groups that attends school. This is illustrated in Chart 5, which certainly supports the general notion of an "educational explosion" during the post-World War II period.

CHART 5

Percentage in different age groups of full-time students



Sources: SOU 1955: 34 "Arbetskraftsbehovet inom offentlig verksamhet"; Central Bureau of Statistics "Statistical Abstract of Sweden", 1963, and *Statistical Reports*, U 1973:30.

Thus, a substantial amount of young people now receive the types of education that are "required" to move up to the "white-collar" and "professional" jobs, which traditionally have been in the "above-the-average", and even "high", income brackets.[1]

The *stock* of students at universities has increased by some 125 percent since 1960 (Chart A:1 in the Appendix). In fact, this is now about 78 percent of the entire stock of people in the labor market with university training. Thus, we would expect a continuation of the process of a rapidly increased supply of college (university) trained people in the labor market during the seventies - i.e. a rapid increase in the number of people with "IV-level education" in the labor market - probably with tendencies to excess supply in the labor market for these groups.

Moreover, students in secondary schools during the sixties largely chose *theoretical* lines of education in high schools ("gymnasium"). This means that we can expect a rapid increase in the stock of people looking for "white-collar" jobs also below the "professional academic" level, and therefore probably tendencies to excess supply also for white-collar employees below the levels that have received academic training - schematically speaking people with III-level education.

We can, in fact, see how, in the Swedish labor market, there is already increasing unemployment both for people with academic training and for other white-collar employees - a rather new phenomenon in Sweden; this is, for people with academic training, illustrated in Chart 6. At the same time, there are, in particular during the booms, vacancies for many types of blue-collar workers.

In a long-run perspective (for instance one decade?) we would expect that these dramatic changes in the supply of labor among people with different training will have considerable effects on wage relations for *different jobs*, and even more - due to stiffer "rationing" of jobs and the "screening" of applicants - for people with *different education*. This hypothesis is supported by the empirical finding, in a study using data from a great number of countries, that the higher the enrollment of students in one educational level relative to the preceding one, the lower is the rate of return on investment in the former level [Psacharopoulos, 1973, Chap. 1].

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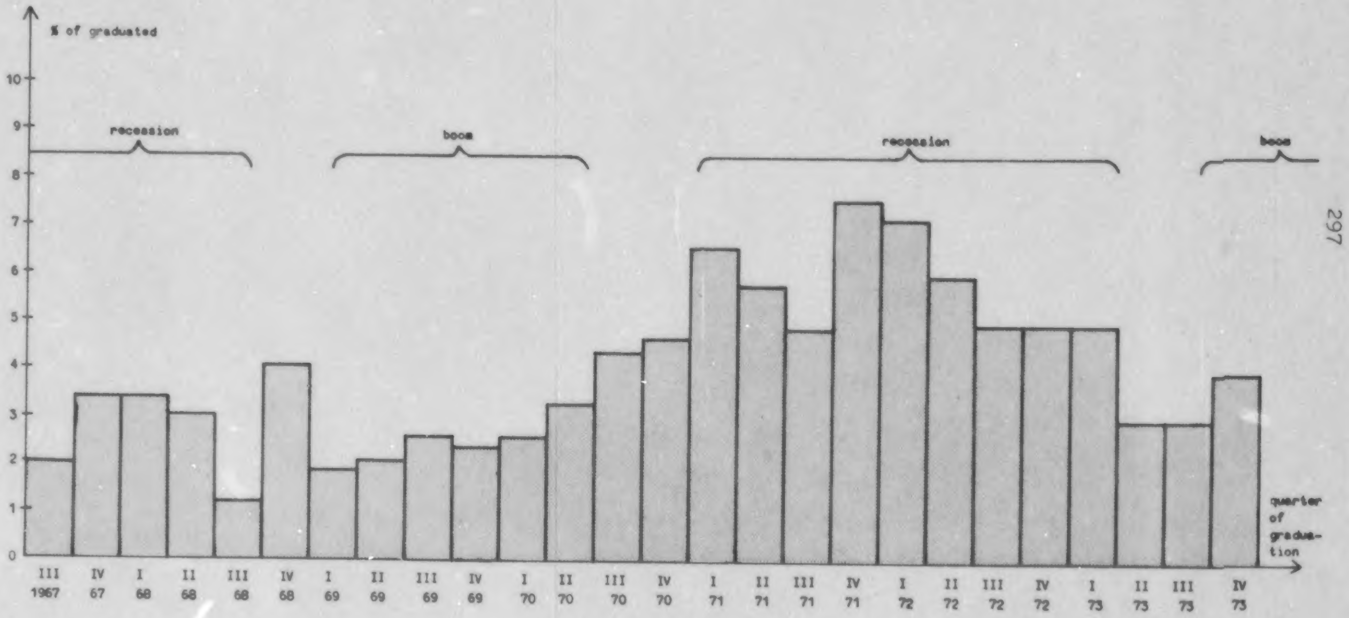
[1] The chart reflects the introduction of a *compulsory* 9-year schooling during the fifties (age groups up to about 15-16 years), and the *voluntary* decision by children (and their parents), to strive for 12 years of schooling during the sixties (approximately age groups up to 17-19 years). On the university level - corresponding approximately to education above the second year of a US college - the fraction of an age group that studies has increased from about 5 to about 25 percent since 1950.

In the context of our schematic discussion earlier in terms of four education levels, perhaps we can say that education level II expanded rapidly during the fifties (students in the age groups 15-16 years), whereas level III (17-19 years of age), and to some extent level IV (20-29 years of age), expanded rapidly during the sixties.

CHART 6

Unemployment for academic people one-half year after graduation



Source: Central Bureau of Statistics, *Statistical Report No. U 1974:46.*

Thus, we can expect that the market will "ask" for an increase in the wages of many types of manual workers relative to certain types of white-collar employees, including university trained people. We would also expect that people with lower academic training will have to accept jobs which were earlier never even considered by people with academic training.

It is, in fact, *possible* that this process has already started in Sweden, from about the mid-sixties, as illustrated by Chart 7, according to which B.A.s in business economics, dentists (in national service), technical college engineers and secondary school teachers have experienced a *fall* in their incomes relative to, for instance, metal workers and semiqualified white-collar workers (the latter "represented" in the chart by bus drivers/ticket collectors). Thus, some narrowing of wage differentials may already have occurred between people with academic training and others from about the middle of the sixties.

We would, of course, expect all this to result in less willingness to undertake *theoretical* training both on the secondary level and on the university level, which sooner or later will modify, or even reverse, the fall in relative incomes of people with academic training. Such a drop in enrollment has actually already taken place in the early seventies in Sweden (for an illustration on the university level, see Chart A:1 in Appendix). The Swedish experience suggests that *students at all levels react very strongly and rapidly* (within one or a few years), in their choice of education, to information on changing prospects in the labor market - *much faster, in fact, than do the authorities in for instance their planning of the dimensions of the educational system*. It is, in fact, possible that students "overreach" in the sense that *cycles* of educational choice will emerge - similar to the well-known pig cycles in price and production analysis.

(f) Problems

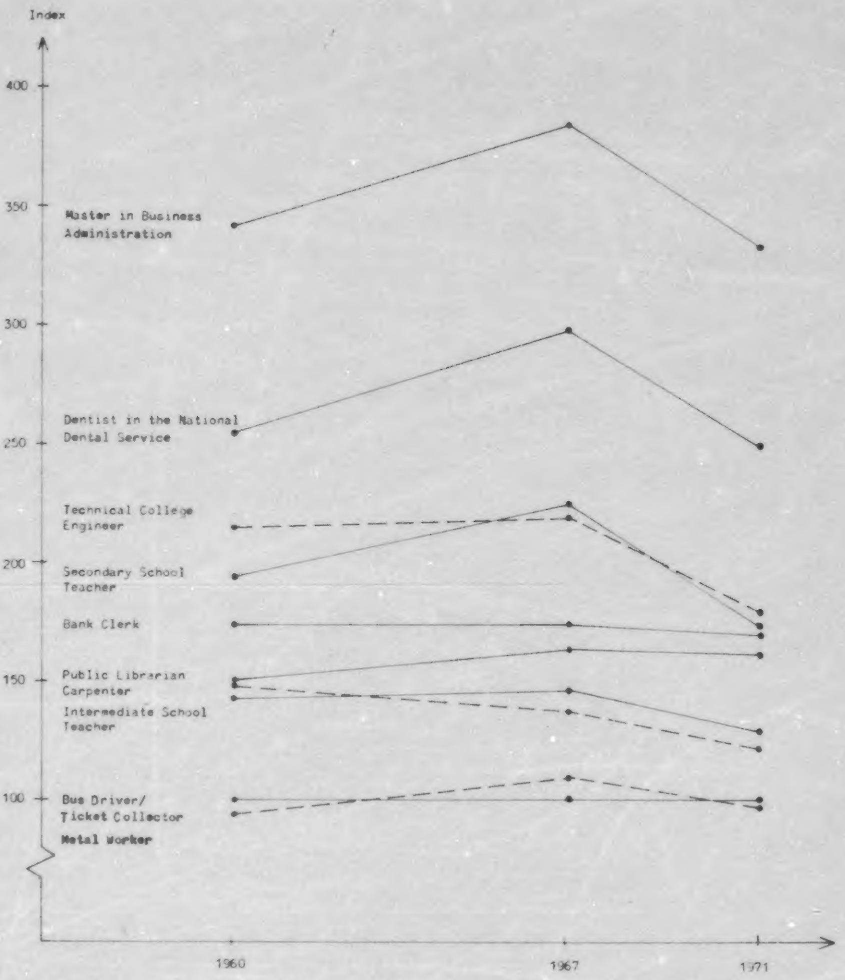
Sooner or later we might, of course, run into a situation where distribution and allocation aspects in education policies come into conflict with each other in the sense that (subsidized) investment in human capital that is regarded as desirable from the point of view of income distribution policy yields a social rate of return far below alternative investment.

Several countries may already be in this situation, *perhaps* particularly in the case of rather general "liberal arts" and social science college and university education. Education then perhaps largely becomes (1) an expensive "screening device" for "natural abilities" and "individual attitudes", (2) a method of molding preferences, values and opinions of individuals (in a rather unknown way), and (3) *possibly* a component of private consumption during the time of studying

CHART 7

Annual relative gross income at 45 years of age, 1960, 1967 and 1971

Index: Bus Driver/Ticket Collector = 100



Source: [SACO, 1963, 1968, 1973].

(the last-mentioned point resting on a rather idealistic, perhaps naive, notion about studies).[1]

Then a trade-off between allocation and income distribution aspects may become necessary. Should that trade-off analysis lead to the conclusion that higher education has expanded "excessively" from the point of view of economic efficiency, several alternative measures could be contemplated, possibly in combination: (1) to let the costs of noncompulsory education be borne by those receiving it; (2) to more strictly ration places at the schools; or (3) to change the content of education (e.g. by the development of vacationally oriented studies, such as in community colleges in the U.S.).

It is important to note, however, (1) that trade-offs between distribution and allocation aspects should be intertemporal, and (2) that it is dangerous to make them very partial. For instance, if some future differentials in factor incomes are removed (by appropriately distributed) investments in human capital today, it may be less necessary in the future to use other methods to bring about income equalization, such as progressive taxes or price and wage regulations - methods which are also connected with various costs and disutilities for the economy.

Actions designed to influence labor demand may also be connected with severe problems - as already hinted at (pp. 266-67). For instance, taxes on the use of high-wage employees, designed to reduce the (after tax) relative wage rate for this type of labor may result in static allocation losses because the marginal rates of substitution in the production process between various types of labor will no longer correspond to the relative wage rates, and hence to the value of the marginal product, for the employees. As a consequence

[1] According to a comprehensive comparison of empirical studies on the rate of return of education in various countries by G. Psacharopoulos, the (social) return to education is now often smaller than the return on physical assets in developed countries - considerably smaller for post-graduate education (corresponding to M.A. and Ph.D. education) [Psacharopoulos, 1973, Chap. 1].

The notion of education as a "screening device" has become high fashion in recent years, two of the pioneers being the American sociologist Ivar Berg [Berg, 1970] and the British economist Peter Wiles [Wiles, 1972]. A formalization is made in [Arrow, 1973].

the transformation curve in the production system of the economy, denoting the "production frontier", will then "shrink". Subsidies to labor in low-income groups, designed to improve their wages may result in some static inefficiencies, too, though in my judgement, usually much less than wage regulations (minimum wage regulations), as the latter often result in unemployment.

The problems change, of course, if we move from the first-best world, where all marginal conditions for efficiency and optimality are fulfilled, to a world with nonefficient allocations, for instance, due to minimum wage legislation and/or "solidaric wage policies" by labor unions. Suppose that various types of wage regulations, or monopolistic elements in the labor market, tend to keep wages for low-wage groups considerably above the value of their marginal product, with subsequent tendencies to unemployment. Then a general subsidy to low-wage labor (often people with handicaps and/or poor education) may be an efficient method - in this "second-best" situation - not only to boost incomes for people in this group, but also to help them to become employed - and thereby improve the macroeconomic allocative efficiency in the economy. The subsidy will then, in fact, reduce the losses in economic efficiency that are created by minimum wage legislation or "solidaric policy".

Also methods designed to remove monopolistic elements, such as "closed shop" rules and other institutional barriers in the labor market, may be favorable from the point of view of both distribution and allocation aspects. Exceptions are perhaps the removal of barriers that reduce the supply of labor in low-income categories, such as barriers against immigration of low-trained foreign labor, since such barriers tend to keep up wages for people with poor education. (However, the wages of the immigrants themselves will most likely increase when they are allowed to move from one country to another.)

Actions by labor unions designed to help the market to achieve an equilibrium wage structure may also be favorable both from the point of view of allocation and distribution policy. For instance, in the case of Sweden, workers' unions could certainly contribute to increasing the efficiency of the economy by helping to push up wages for skilled workers where there are now often vacancies - with "unclear" effects on the distribution of income from the point of view of strongly egalitarian values.

A difficulty in all attempts to improve the relative wage for one group is that other groups do not seem to accept this. Instead they often try to push for "compensation" to restore the initial wage differentials. It is obvious that the ambition of many labor market organizations to prevent a fall in their relative position may make it difficult to achieve an equilibrium wage structure.

Wage regulations against market forces represent a problem from the point of view of both economic efficiency and distribution. Firstly, wage rates above the market-equilibrium level - brought about by minimum wage legislation or bargaining - will create unemployment for low-income groups and new entrants into the labor market (such as young people).[1] Secondly, low-profit firms may go "broke" because of a high-wage pressure. Thirdly, a badly functioning labor market may result in a "poor" Phillips curve, which may force politicians to keep down aggregate demand and hence retain a high unemployment, to fight inflation.

Moreover, when currently employed persons are not willing to go to the vacant jobs (because they are not paid highly enough), some unemployed who do not "fit" the vacant jobs cannot easily enter the labor market. Thus, by not allowing wages to increase where there are vancies in the labor market, the organizations (or authorities) will accentuate unemployment (often called "structurel unemployment") in the economy, by preventing a smooth, continuous substitution of people between different jobs in the labor market.

Another issue related to reduced wage differentials is, of course, the question as to whether people are willing to take risks if there is no, or very little, pecuniary reward in this. Emigration is, of course, another conceivable outcome if some income groups permanently experience very much lower wages in one country than in others. However, here a high-income country has an advantage relative to low-income countries. There is a "leeway" for reduced wage differentials in the former, as the level of income may nevertheless be higher than abroad, in spite of smaller wage differentials. This point is certainly of importance for a high-income country such as Sweden.

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[1] See, for instance, the study by [Mincer, 1974].

f.1 Swedish experiences

It is difficult to estimate quantitatively the effects of the narrowing of wage differentials in Sweden in recent years. However, it would seem that the labor market in recent years has been functioning less well than earlier, in spite of more and more active policies by the Labor Market Board. For instance, both the number of unemployed and the number of vacancies have increased during the recent decade, at a given situation in the business cycle (given "excess demand").[1] We do not know, of course, how serious this is and to what extent it is a result of the squeeze on wage differentials, the drop in profit margins, a more rapid rate of change in the comparative advantage of various sectors, or other circumstances.

Moreover, employers and labor market authorities have during recent years reported serious difficulties in filling vacancies for "skilled blue-collar positions", perhaps reflecting a considerable reduction in the interest among workers to advance and to undertake unattractive or difficult jobs at prevailing wage relations. However, these statements are based on reports and speeches by employees and the representatives of the Labor Market Board, and not on any systematic empirical studies; thus, we do not know what importance should be attached to them.

Moreover, it is possible that incentive effects on work effort and labor supplied take time to emerge; perhaps the effects are much stronger for a new generation of employees entering the labor market than for the "established" labor force, which has already adapted their "working habits" to previous incentive systems. What we do know, however, is that the absenteeism from work has increased somewhat in recent years in Swedish manufacturing, in particular after the new rules for "sick absentee" in 1967, according to which no certificate from the physician is necessary for absences up to seven days, and the loss in disposable income is minimal. However, even if the development has been dramatic for some specific firms, the change is modest for manufacturing as a whole, as illustrated by the following figures of reported absentees (excluding vacation), as a fraction of total number of employees, in Swedish manufacturing:

1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
6.1 %	6.3 %	6.8 %	7.4 %	7.4 %	7.0 %	6.8 %	7.0 %	6.3 %	7.4 %

---

[1] The ratio (V+U)/L, where V = vacancies, U = unemployment and L = labor force, has increased considerably in recent years. Or, alternatively measured, equilibrium in the labor market, in the sense that the number of vacancies equals the number of unemployed (V = U), nowadays tends to occur at a higher level of unemployment than earlier.

One reason why problems connected with reductions of wage differentials between skilled and unskilled labor have not been more serious for the efficiency of the Swedish economy is perhaps that piecework is very usual in Sweden (relative to other countries), which means that the individual worker is paid largely in relation to his contribution (see Chart 8). If piecework is largely removed, as is demanded more and more by several labor unions, much larger wage differentials between various skill groups of workers might be necessary in order to achieve an efficiently functioning labor market and production system. In that case, wage differentials between various skill groups must be great enough to make it worthwhile for workers to try to qualify themselves for entrance into a higher skill group. In other words, if individual variations in wages fall due to a removal of piecework, differences between groups of workers may have to increase.

The link factor income - disposable money income

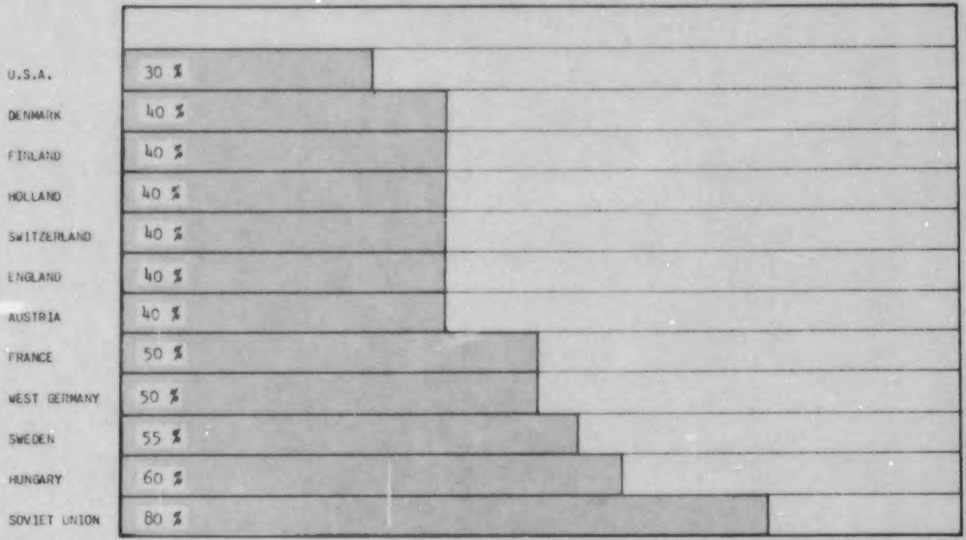
The "classical" methods of modifying the link between factor income and disposable money income are, of course, direct taxes and direct transfer payments - the term "direct" referring to the fact that disposable incomes are affected "directly" at given commodity and factor prices, rather than being influenced "indirectly" by way of changes in these prices. Transfer payments may, analytically, be treated as negative taxes. Though such tax-transfer systems have been tried in a number of countries, comprehensive studies about the effects on the distribution of disposable income are still rather scarce. However, a study by Gillespie for the U.S. came to the conclusion that government tax-transfer systems in 1960 reduced the spread between a top and a bottom income group (each representing 14 percent of families) from 16:1 to 9:1 [Gillespie 1967] in the sense that the ratios between the groups differed in this way when comparing factor income and disposable money income. Similarly, studies for the U.K. suggest a "reduction" between a top group (of 13 percent of the population) and a bottom group (of 18 percent) from 40:1 to 6:1 around 1970, i.e. a very dramatic reduction in income inequality [Economic Trends 1972].

Thus, studies from both the U.S. and the U.K. suggest that the distribution of disposable income differs considerably from the distribution of factor income - when comparing top and bottom income receivers.

CHART 8.

Piecework wages in different countries in the early seventies

A rough comparison of the total volume of piecework wages*



*All forms of wages connected directly with piecework (pure piecework wages, bonus systems, etc.) have been included.

Source: [SAF, 1973]

(i) *Swedish experiences*

(a) Current income

Chart 9 A shows the income tax rates for various income brackets in Sweden. As an illustration of the increase in taxes during the last two decades, Chart 9 B depicts the income tax rates for income *in constant* (1953) *prices*, according to a study by Jakobsson and Normann [Jakobsson-Normann, 1974].

An empirical study by Lars Söderström [Söderström, 1971] of the importance of taxes and transfers in 1967 is summarized in Chart 10; (it is based on a sample of 6,000 persons who were interviewed). The chart shows how transfer payments and pension benefits fall, both in absolute and relative terms, at higher (taxable) incomes, while taxes rise rapidly.

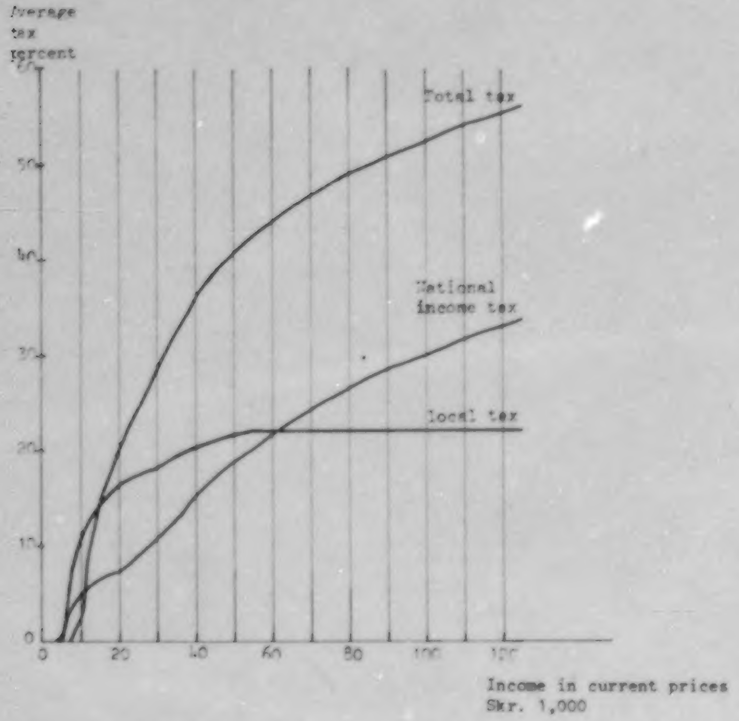
According to the study, the average tax-minus-transfer rate of income was 20 percent for income receivers in 1967 (taxes *minus* transfers divided by gross income). The "inequality" (measured by Theil's "inequality coefficient") of disposable income (column D in Table 3) was about 35 percent smaller than the "inequality" of taxable income (column C) for full-time employees; i.e. the "inequality" of income was reduced by 34 percent (100 minus the value in column F) by taxes and transfer payments - factor incomes being regarded as given. The relation between disposable income and taxable income varies consistently with the income level, showing a clear progressive tax pattern (column E). (Two out of the 16 population groups in the table had in fact a *negative* income "tax transfer rate" - disposable income being greater than taxable income.)

The expansion of the income-dependent transfer payments in recent years - housing subsidies, subsidized costs of nursery schools and kindergartens, etc. - has further accentuated the progressiveness of the tax-transfer system. The net result for households with children is illustrated in a *schematic* (theoretic) diagram (for conditions in 1972), Chart 11 [Andersson, 1973]. It depicts calculated income taxes and transfer payments, and the net direct impact of these, for families with two children. We can see from the chart that a considerable fraction of the population had a "negative income tax" (including the effects of the transfer payments).

As a consequence of all this, disposable income of families with children differs rather little, in principle, for a family with Skr. 20,000 and one with 60,000 in factor income. This rather new situation for Sweden is illustrated in Chart 12 (as well as in Chart A:3 in the Appendix), based on calculations with coefficients from the rules of the tax and transfer systems; disposable income increases very slowly with rising factor incomes. The ratio of 10:1 between a factor income of Skr. 100,000 and Skr. 10,000 is, according to these calculations, reduced to about 2.5:1 for disposable income between corresponding groups (for families with two children and one income earner). Families with children with incomes up to Skr. 21,000 have, according to the chart, negative income tax-transfer rates. All this is a consequence of the earlier mentioned fact that in recent years the emphasis in income distribution policy in Sweden has been more than earlier on income differentials *within the mid-income group*.

CHART 9 A

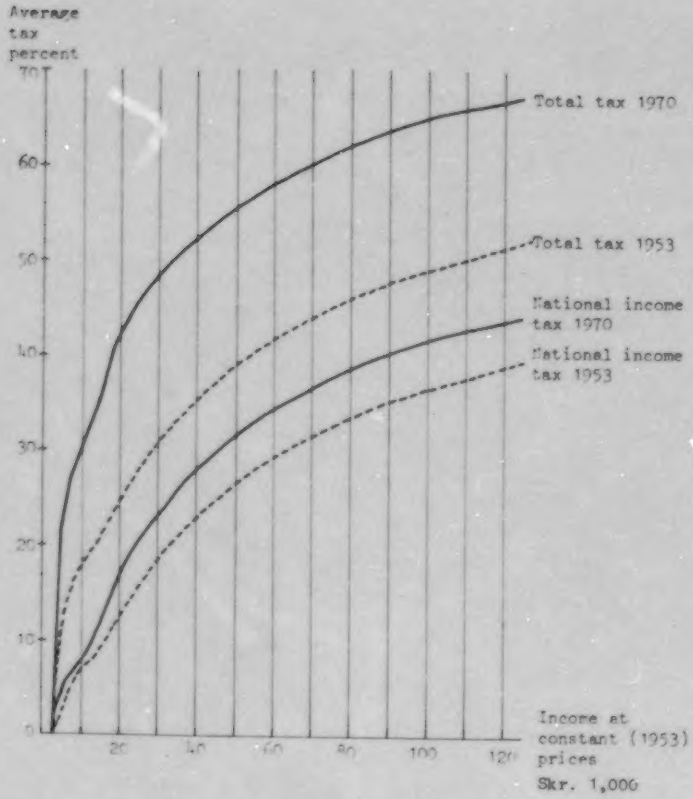
Average tax rates as percent of nominal income for married men 1971; (wife not assessed). Theoretical calculations.



Source: [Jakobsson-Normann, 1974]

CHART 9 B

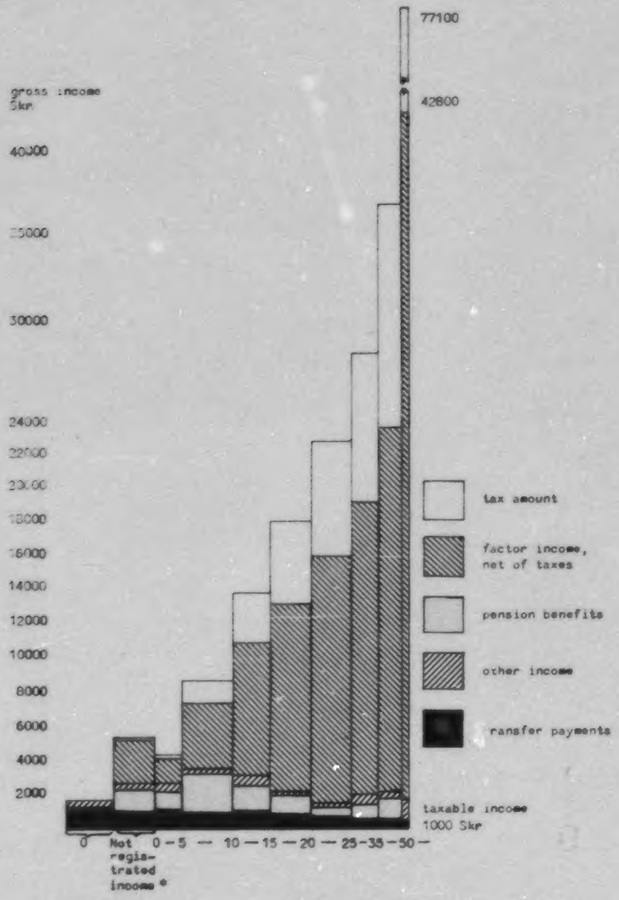
Average tax rates as percent of real income for married men 1953 and 1970; (wife not assessed). Figures in 1953 prices. Theoretical calculations.



Source: [Jakobsson-Normann, 1974]

CHART 10

Empirical study of composition of gross income in different income brackets, 1967. Age 15 to 75 years; classified by size of taxable income *



Source: [Söderström, 1971]

* Tax assessment statistics exclude persons with assessed incomes below Skr. 2,350. However, a person could have a higher total net factor income and still not exceed the limit of assessment because of the various deductions he is eligible for.

TABLE 3

Empirical study of taxable income and disposable income for various socio-economic groups in 1967. Average incomes and measure of inequality within groups

	Population groups[1]	Taxable income (average)	Disposable income (average)	Measure of inequality of taxable income[2]	Measure of inequality of disposable income[2]	Disposable income in percent of taxable income	Inequality of disposable income as percent of inequality of taxable income
		(A)	(B)	(C)	(D)	(E)	(F)
1	Full-time employees (20-67)[3]	23 700	17 000	135	89	71.7	65.9
2	Workers	15 600	12 400	182	134	79.5	73.6
3	Employees	20 100	14 800	239	157	73.6	65.7
4	Men	20 400	15 100	282	192	74.0	68.1
5	People with sickness tendencies[4]	13 800	11 900	357	205	86.2	57.4
6	People with short schooling[5]	12 300	10 300	396	274	83.7	69.2
7	Unmarried	11 200	9 300	398	276	83.0	69.3
8	All (20-67)	15 600	12 200	442	288	78.2	65.2
9	People living in big cities	16 800	13 100	473	323	78.0	68.3
10	People living in countryside	12 000	9 800	480	323	81.7	67.3
11	All (15-75)	13 900	11 100	492	325	79.9	66.1
12	People with poor liquidity[6]	7 900	7 300	516	310	92.4	60.0
13	People in families with low incomes (20-67)[7]	7 800	7 100	517	310	91.0	60.0
14	Women	7 400	7 000	653	401	94.6	61.4
15	People with short working time (20-67)[8]	3 600	5 000	973	548	138.9	56.3
16	People with incomes below lowest income tax bracket	1 800	3 400	1 276	636	188.9	49.8

---

[1] Age group 15-75 if not otherwise stated

[2] Theil's inequality coefficient ("redundancy")

[3] More than 2,000 hours a year

[4] Sick at least 8 days a year (?)

[5] At most 7 years of schooling

[6] Declaring themselves unable to raise Skr. 2,000 (approx. $400) within one week

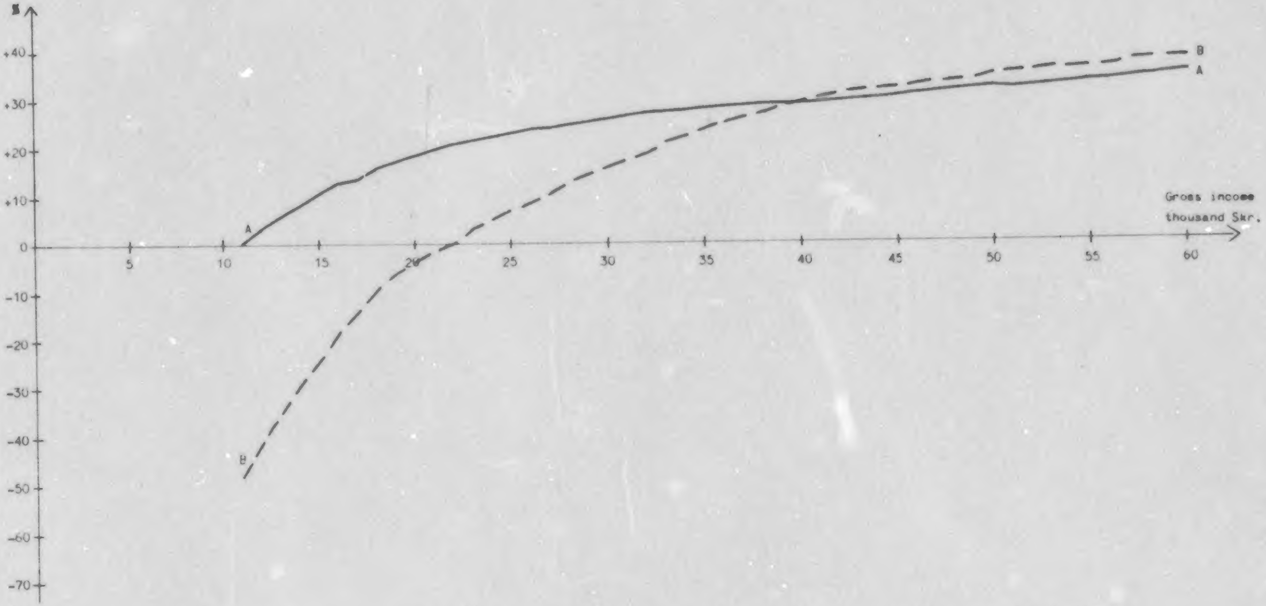
[7] Less than Skr. 20,000 ($4,000) for married and Skr. 10,000 ($2,000) for unmarried

[8] Less than 900 hours per year

Source: [Söderström, 1971]

CHART 11

Calculated tax curves for married people/couples living together; both gainfully employed, with 2 children under 16 years of age
"Effective tax" (A) and "net tax", 2 children (B), in percent of gross income.*



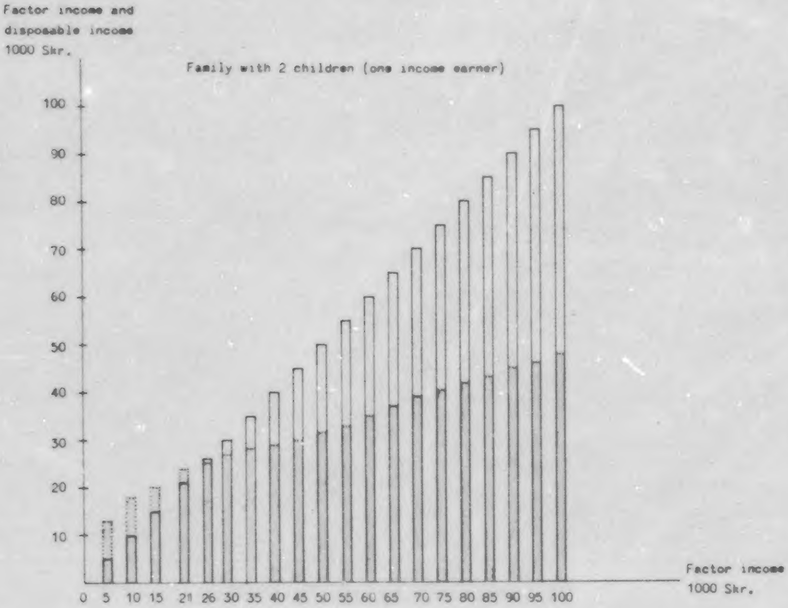
* "Effective tax" is that part of the gross income which is actually paid out in taxes.
"Net tax" is defined here as that part of the gross income which is received from, or paid to, the public sector.

Source: [Andersson, 1973]

CHART 12

Factor income and disposable income for family with 2 children 1973

Theoretical calculations.



Shaded area indicates disposable income.

A municipal tax rate of 24 percent (which corresponds to the national average 1973) has been assumed. Child and housing allowances have been treated as negative direct taxes. The general insurance fees and housing allowances are according to the schedule applying to Greater Stockholm. Cases with more than one income earner in a family with children have not been considered.

Source: Basic statistics from [Matthiessen, 1973]

The consequences for the overall vertical distribution of disposable money income of the tax-transfer system in Sweden is summarized in Charts 13 and 14. Chart 13 is an emperical version of Chart 12; it gives about the same picture, though somewhat less dramatic. Chart 14 shows that disposable household income is much more evenly distributed than factor income, and per capita disposable household income is still more evenly distributed. This is also reflected in the maximal equalization coefficient, which for factor income of households is 34, for disposable household income 22 and for disposable per capita household income 18. Table A:9 in the appendix suggests that whereas the ratios of factor income for the highest and lowest decades is 190: (-1), the corresponding ratio of disposable income is 5:1.

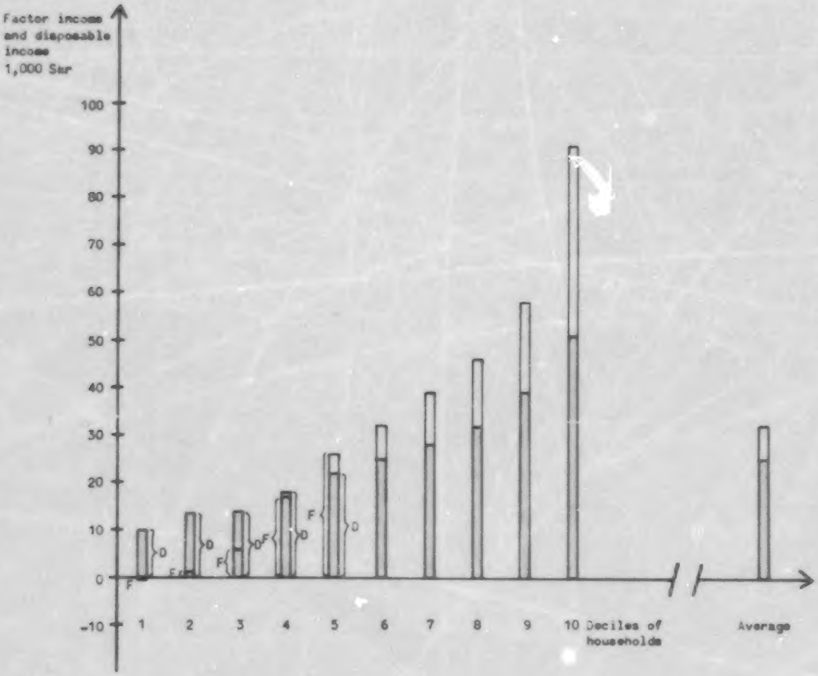
(b) Life-time income

Chart 15 illustrates the point that the year is not a reasonable period for income comparisons. The income concepts used there are: (1) annual gross income; (2) accumulated life income, gross; (3) accumulated life income, net (i.e. after taxes and income-dependent transfers); and (4) discounted life income, net. As is seen from the chart, figures for annual gross income give completely misleading information on resources available over long periods to individuals with different professions. The reason is not only that the period of working life in the labor market differs, but also that the progressive tax system hits people with an uneven income stream over time harder than groups with a more even income stream. For instance, a B.A. in Business Administration in 1971 had a salary 233 percent higher than a "typical" low-bracket white-collar employee (represented in the chart by bus drivers/ticket collectors) if income is computed annually on a pre-tax basis, whereas the difference is down to 86 percent if measured as accumulated life income net of direct tax. If we discount future earnings by a discount rate of 5 percent, the difference of life income net of direct tax would be 47 percent.

It should be observed, however, that these calculations are "theoretical" rather than empirical. They neglect a number of factors that are important for incomes of specific individuals; for instance, the risk of unemployment and the frequence of sick leave differ among professions. Moreover, it should be emphasized that the calculations represent a "snapshot" of the hypothetical life income at a point of time. They do not tell us how incomes actually develop over "calendar time" for actual individuals; such calculations would require information also concerning both the career paths of individuals and the change over time in incomes for various jobs in society.

CHART 13

Average annual factor income (F) and disposable income (D) per household 1972. Decile groups*



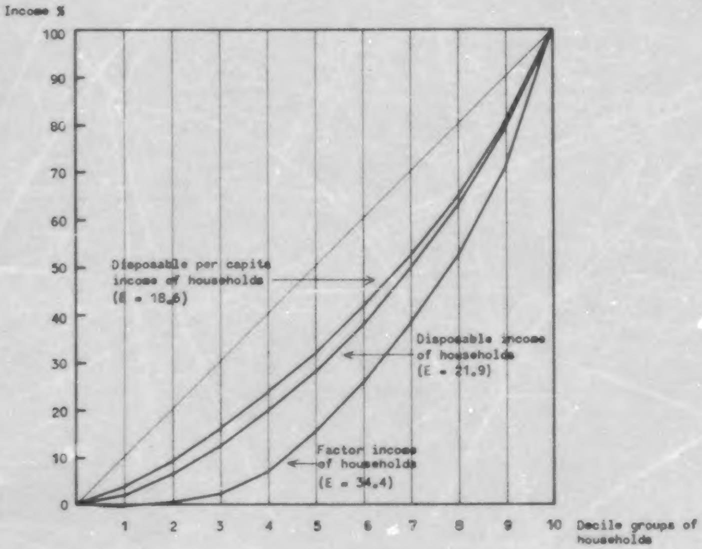
*Ordered by distributed factor income per household.

Data: Questionnaires.

Source: Central Bureau of Statistics;
Swedish Survey on relative income differences 1972.

CHART 14

Lorenz curves for factor income, disposable income and disposable income per capita of *households*, 1972



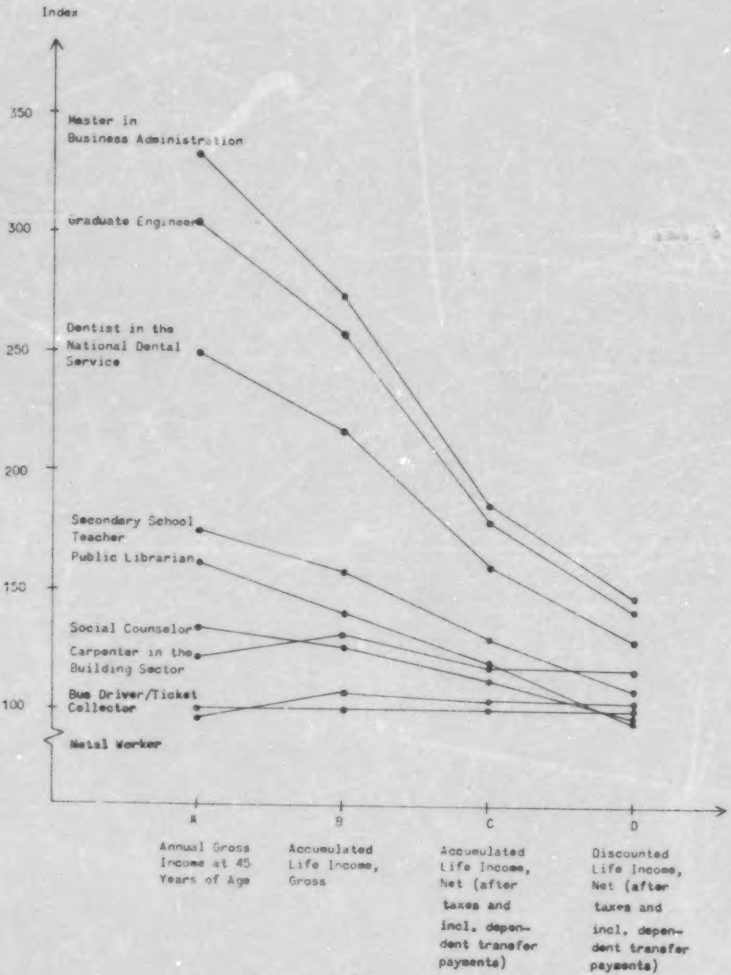
E = "maximal equalization coefficient"

Data: Income distribution survey, sample of 5,000 households.

Source: Central Bureau of Statistics; Swedish Survey on relative income differences 1972.

CHART 15

Income dispersion with alternative definitions of income (1971)



Source: [SACO, 1973]

(ii) Problems

One type of criticism of progressive taxation concerns (a) the effect on incentives. A second refers to the fact that (b) the effects on the distribution of disposable real income may partly be an illusion because of adjustments by individuals in their factor incomes, by way of legal and illegal loopholes, shifting of taxes on factor prices, etc. The former criticism is to some extent in conflict with the latter: if taxpayers could avoid the progressive taxes by loopholes and shifting, some of the incentive effects (for instance on work-effort and saving) could be avoided. However, both types of criticism could be, and probably are, partly true. For instance, some of the adjustments, by way of loopholes and shifting, no doubt imply that inefficiencies are created by way of "distorted" incentives. Thirdly, (c) progressive taxation has been criticized for its macroeconomic effects on income formation and the rate of inflation.

(a) Incentives

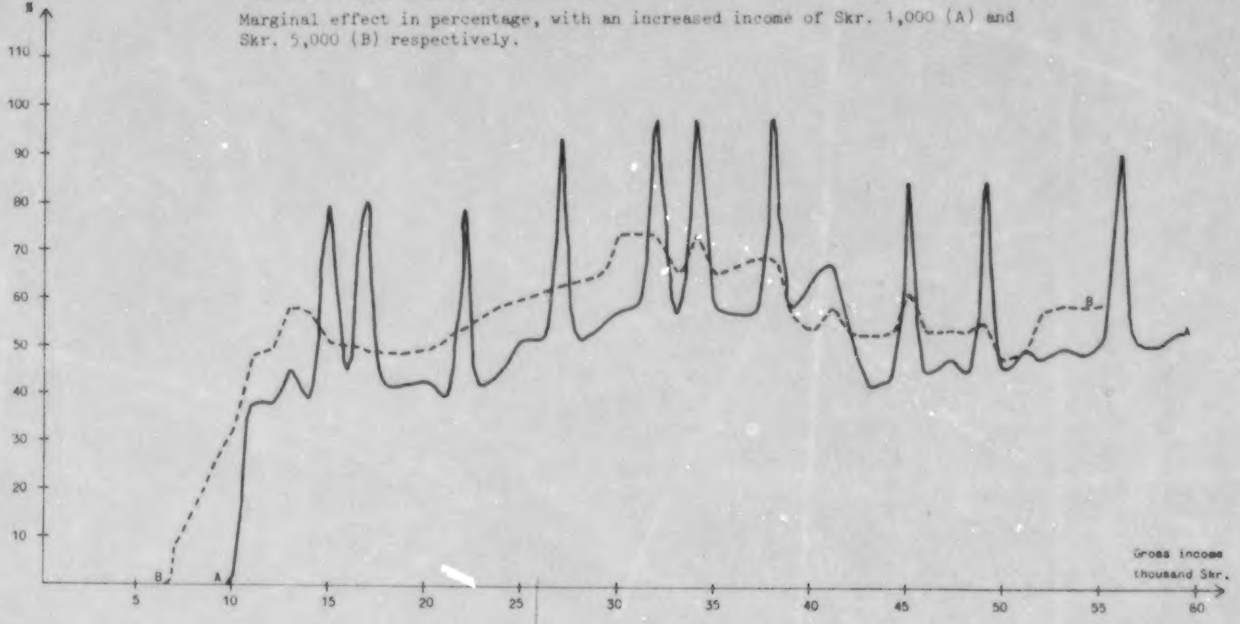
If, by way of tax-transfer policies, we drastically reduce the differences in disposable income between individuals with different factor incomes, it is unavoidable that we then also make the marginal tax-transfer rates very high, and hence make it difficult for an individual to raise his income by his own efforts. This is exactly the situation that has been created in Sweden. The problem is illustrated in Chart 16, constructed by Iréne Andersson, which shows that "marginal rates", including the effects of income-dependent transfers, are in the neighborhood of 70 percent for large groups of people in the middle-income brackets.[1] One reason for the very high tax-transfer rates is the existence of considerable housing subsidies and other income-dependent transfer payments, which are

[1] For small changes in income, such as by Skr. 1,000, the tax-transfer rates are in fact close to 100 percent in some income brackets, because of the discontinuities in the scales relating transfers to income. These extreme figures are a consequence of the inability of tax legislators and administrators to construct continuous functions (because of poor training in mathematics?) rather than to an unavoidable problem with highly progressive rates.

CHART 16

Calculated marginal effects of increased taxes, increased day-nursery fees, and reduced rent allowance for married people/couples living together; both gainfully employed, with 2 children under 16 years of age

Marginal effect in percentage, with an increased income of Skr. 1,000 (A) and Skr. 5,000 (B) respectively.



Source: [Andersson, 1973]

reduced as income increases. The chart is based on hypothetical calculations, i.e. on knowledge of tax and transfer rates in different income brackets, rather than on empirical studies of actually existing families.

Because of mounting criticism of these high marginal tax-transfer rates in recent years, politicians and labor union leaders have ambitions to achieve lower rates, which represent to some extent a retreat in redistribution policies in response to (assumed) unfavorable incentive effects and dissatisfaction among income earners.

Since high marginal tax-transfer rates have somewhat similar incentive effects, in principle, as reduced wage differentials, we can simply refer to the previous discussion (pp.298-303) of possible effects on incentives to work, choose a job, acquire skills, take risks, emigrate, etc. There is at least one fundamental difference, however. Whereas reduced wage differentials and high marginal tax rates both reduce the possibilities for the individual to improve his position by his own effort, by way of advances to higher paid jobs, high marginal tax rates have the additional effect that the individual gets a very low reward for additional working hours in a job with a given wage rate. Thus, the freedom of the individual himself to choose between consumption and leisure time is much more distorted through high marginal tax rates than through a reduction in wage differentials.

When considering saving incentives of high taxes, it is tempting to argue, as a first approximation, that household saving is such a relatively small fraction of total saving - about 22 percent of net saving and about 13 percent of gross saving (average 1964-73) in Sweden - that it could perhaps be compensated for by more public saving. However, we are then of course confronted with some rather broad problems of economic power, and of the actual character of the economic system. For instance, to what extent is it possible, in a long-run perspective, to have a decentralized and pluralistic society with very little private household saving and investment? Moreover, what happens to the entry and growth of family firms? And, if private wealth is an important variable in the preference function of individuals, a tax system that largely removes such wealth would certainly have negative welfare effects.

Another well-known incentive problem is that people with high marginal taxes may try to *transform incomes into capital gains*. In a society where the income tax is high, capital gains will perhaps be the most significant way to accumulate private wealth - for assets such as fixed property, shares, ownership in family firms, works of art, antiques, stamps, etc. - a tendency perhaps further accentuated by accelerating inflation. This has probably been an important mechanism for wealth accumulation in many countries including Sweden during the post-World War II period.

As there is very little, if any, theoretical reason (from an egalitarian poi[illegible]f view) for treating "income" in the form of capital gains differently from conventional incomes in the tax system, there is of course a strong case for the taxing of capital gains in the same way as other incomes. Ideally, a capital-gains tax should then presumably be a tax on the *accrual* of wealth; i.e. the tax should be paid regardless of whether the property is sold or not. However, such a system would probably require not only continuous reassessments of the value of the property but also a right for the taxpayer to pay the tax by IOU. Otherwise, the owner might be forced to sell his property in order to pay taxes when the market value of his firm or other assets goes up.

In most countries, capital-gains taxes have instead been constructed as "realization taxes". The Swedish capital-gains taxes are of this type: "realized" capital gains are, in principle, added to income and taxed as ordinary income. However, in practice, the system seems to function mainly for fixed property (houses and land) and for shares. And in the case of fixed property, the tax is modified by liberal rules of implementation; for instance, in the case of shares, the tax is reduced relative to the length of time a share is held.

There are several well-known problems connected with taxes of this type. For instance, the incentive to change the portfolio is reduced. Wealth holders will stick to shares with rather small future earning potential, relative to others; this might have some stabilizing effects on the stock market in the short run but will likely reduce the allocative efficiency of the market in a longer perspective. In the market for owner-occupied houses, a person will have to pay a considerable amount of money simply because he wants to change houses (if not, as in the U.S., the capital gains tax can be postponed by using the receipt of the sale to buy another house).

(b) Loopholes and shifting

The issue of loopholes and shifting of taxes is too large and complicated to be penetrated thoroughly here. The discussion will be restricted to some simple reflections and examples.

b.1 Loopholes

The tendency of households to switch from money income to income in kind is an obvious case. It takes the form of both do-it-yourself work (which of course is legal) and barter of goods and services (which is probably formally an illegal form of tax evasion) - both with consequences for the distribution of welfare and the efficiency of the allocation of resources.

As examples of do-it-yourself work, people are stimulated to work on their own homes, gardens, cars, boats, etc. rather than earning money incomes and buying services from specialists. For instance, work at home as a housewife is favored relative to work for money income on the market.

Barter transactions occur perhaps mainly for services. For instance, the painter pays the dentist with a painting, and the bricklayer and the plumber help each other to build houses. Fringe benefits - in the form of travel expenses, nice office furnishings and "conferences" - are other well-known examples. If you have an income of Skr. 68,000, and the marginal tax rate is 67 percent, there is quite a great temptation to accept payment in the form of a holiday trip, under cover of a "business trip" worth Skr. 5,000, with a market value of 15,000 before tax, rather than accept money income of an amount between Skr. 5,000 and 15,000. Both the employer and the employee will gain.

More obvious examples of illegal tax evasion are when some self-employed people accept jobs only if the buyer promises not to report the income to the tax authorities - a rather well-established practice it would seem, in several professions in Sweden today, such as in the case of temporary domestic servants (such as cleaning women), and many types of services by craftsmen.

All this does not mean, of course, that do-it-yourself work, barter and non-market transactions are now more usual than say 50 years ago. But it would seem that the division of the economy between a money exchange sector and a barter (and "do-it-yourself sector") is nowadays more highly influenced by the tax system, rather than by comparative advantages of these two types of economic activity and exchange, than it was earlier. Historically speaking, the money-exchange sector has of course increased continuously, but it is possible that the tax system now tends to break the trend in some high-income - nign-tax countries so that we again will move in the direction of a barter and do-it-yourself economy.

So far, I have mainly discussed the possibilities of avoiding income taxes. It is also quite possible to avoid capital-gains taxes, for instance, by making "two-way transactions" between buyers and sellers and thereby "knocking down" the prices of both commodities - a system evidently rather widely used in the Swedish market for owner-occupied houses. In view of these problems, there is probably a strong case for trying to implement the capital-gains tax on an accrual basis rather than on a realization basis.

A more obvious way of avoiding domestic taxes is, of course, to make transactions, and deposit wealth in foreign countries. In an "open society", where transactions with foreign countries including travelling are not controlled in detail by the authorities, it will always be possible for people to avoid some taxes by foreign transactions, in particular vis à vis countries that function as "Tax Heavens".

Only a few examples have been mentioned here of the enumerable ways that seem to be used for avoiding taxes. In fact, a whole book on this subject was recently published in Sweden by a tax specialist [Oscarsson, 1973].

Finally, it should be emphasized that we do not have any useful systematic empirical studies on the quantitative significance of these various types of attempts to avoid taxes.[1]

b.2 Shifting

Shifting of the progressive element of the tax system onto factor prices is probably easiest for groups where excess demand prevails, such as for various types of specialists who have not fully exploited what the market can pay. In these cases, an increase in the income tax may simply be regarded as a device that helps to push the market more rapidly towards equilibrium; a 100 percent shifting is then possible. In the case of income receivers where excess demand does not prevail, a 100 percent shifting is quite unlikely. If there is equilibrium in the market to begin with, 100 percent shifting of a tax requires not only that the supply of the relevant type of labor is reduced but also that the demand for labor is completely inelastic. As this is rather unlikely, the progressive part of the tax system is hardly shifted by 100 percent (except possibly for the earlier mentioned groups with initial excess demand).

Moreover, when we look at the enormous difference between the distribution of, on the one hand, factor income and, on the other hand, disposable income, as well as the reduction over time in the inequality in the distribution of disposable income, it seems unlikely that shifting has been close to one hundred percent. For instance, I find it hard to believe that the previously reported dramatic reduction in the differences in disposable income between people with Skr. 100,000 and Skr. 10,000 (of factor income) in Sweden has been reflected in a corresponding widening of factor incomes; the statistics (time-series over factor incomes) simply do not support such as assumption.

---

[1] Ragnar Bentzel made an attempt to quantify the size of tax evasion in the early fifties by a comparison between incomes in taxation statistics and in national accounts. He came up with a figure of about 7-9 percent of national income [Bentzel, 1952], a very uncertain figure because of poor reliability of the statistical material for such purposes. Later studies are not available.

Let us also look at what has happened since the turn of the century (1907). Then the average disposable income was about Skr. 2,550. About 620 persons in the country had, at that time, an income at least 25 times the average. To have a disposable income 25 times the average in 1948 would have required Skr. 120,000, which then corresponded to about Skr. 280,000 before tax. Seventy persons earned such an amount in 1948. To achieve a disposable income 25 times the medium income in the early seventies, one would have to earn about Skr. 500,000 after tax, which would require Skr. 3,300,000 before tax. According to the taxation statistics, nobody had such a high income in 1970 in Sweden. These figures give, perhaps, some illustration of the equalization of after-tax income that has taken place between the top and the middle since the turn of the century. The relative improvement of income of people at the very bottom of the income pyramid is probably even more pronounced; moreover, the latter type of improvement is presumably of particular importance from the point of view of rather generally accepted welfare criteria.

My preliminary conclusion is that the shifting of the progressive tax-transfer system has hardly removed, even approximately, the intended redistribution effects of the system. This does not, of course contradict the hypothesis that part of the differences in factor incomes in Sweden reflects a shifting of the tax-transfer system. Moreover, to the extent that "status" is attached to pre-tax wages rather than to disposable income, progressive tax-transfer systems that are, even partly, shifted onto wages might be "counterproductive" from the point of view of "equalization of status".

Moreover, as the possibilities to evade taxes, and to turn taxable money income into non-taxable income in kind, differ enormously between professions and individuals in each given income bracket, attempts to reduce inequalities in the vertical income distribution by the tax system will most likely sharply increase the inequities in the horizontal distribution, i.e. within given brackets of reported money income. Perhaps in Sweden we have wound up in a situation where the consumption standard - in at least parts of the income pyramid - is connected as much, or more, to the willingness and abilities of individuals to avoid taxes as to differences in "reported" factor incomes. That would mean that the tax system partly becomes "taxation of honesty" instead of only taxation of income and other endowments.

(c) Macroeconomic complications

Even if shifting *in real terms* of the progressive part of the tax system may not be a *major* problem, it is still possible that the shifting succeeds *in nominal terms* and, hence, that the tax system has an inflationary effect on the economy.

It is recognized that the progressive tax system has a stabilizing effect on the economy on the demand side (the theory of automatic stabilizers in fiscal theory). However, progressive taxes, and high taxes in general, may have a destabilizing effect on the cost side if organizations in the labor market try to compensate themselves for tax increases. In fact, if the tax system is highly progressive, very large increases in wages will be necessary to achieve a given increase in real disposable income. For instance, if the marginal tax rate is 0.7, and the average rate is 0.4, wages before taxes have to increase by 2 percent for every percent we try to increase wages after tax. The "elasticity" of disposable income with respect to factor income becomes 1/2. If the price-raising effects of wage increases are also considered, we easily run into a situation where *very* large wage increases are necessary to obtain even modest increases in real after-tax income.[1] Attempts by labor unions to achieve increases in real disposable income - to "beat" both the progressive tax system and inflation - may then be an important component in an inflationary spiral.

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[1] The "wage multiplier" *m*, below, tells us by what percent wages before tax have to increase in order to obtain a one percent increase in real disposable income:

$$m = \frac{1}{\frac{1-t_m}{1-t_a} - k},$$

where t_m = marginal tax rate, t_a = average tax rate, and k = percent increase in prices for every percent increase in wages [Lundberg, 1953].

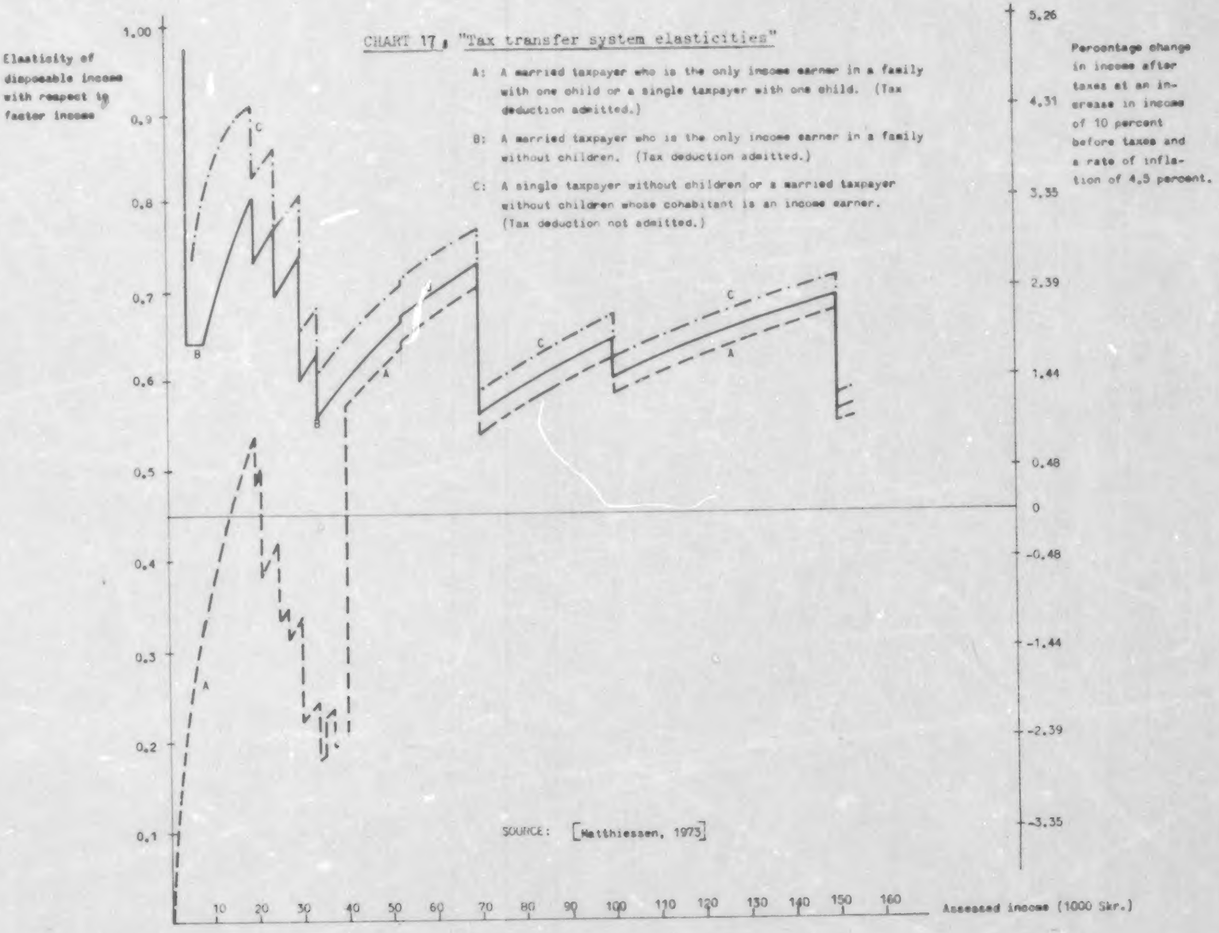
We may even run into "explosive" systems, where there is no conceivable increase in wages before tax that can result in an increase in real wages after tax. By pushing up wages labor unions may even lose real disposable income; the effects of higher wages and prices would then simply be that purchasing power is transferred to the public sector rather than to wage earners! Sweden is at the present time quite close to this situation, if not only taxes but also income-dependent transfers (such as housing subsidies) are considered.

Chart 17, constructed by Lars Matthiessen, illustrates the situation in Sweden. The (left) vertical axis shows the elasticity of disposable money income with respect to factor income: by how many percent disposable income goes up when factor income increases by one percent. For instance, an increase by one percent of factor income will result in an increase in disposable money income by 0.2 percent for a married taxpayer with Skr. 30,000-40,000 in income (in a family with one income earner and one child). For a person with an income in the interval 70-150,000 Skr. the corresponding increase will be 0.55-0.7 percent. The right-hand vertical axis shows that "normal" tax-payers will in fact experience a reduction in their real disposable income if wages go up by 10 percent and prices rise by 4.5 percent at the prevailing relation between marginal and average tax-transfer rates in Sweden (except for a small group of people with incomes around Skr. 20,000). The situation is somewhat "better" for people with higher incomes, as their marginal and average tax transfer rates tend to converge, which means that the previously mentioned "elasticity" approaches unity.

During the past five years (1969-73) when wages for workers in manufacturing have increased by about 11 percent annually, and prices by about 6 percent, real after-tax wages have in fact increased by only about 0.5 percent per year in Sweden. The increases in real disposable income that have nevertheless occurred have instead been brought about by increases in discretionary transfers, public consumption and in some years by a discretionary tax cut.

The consequences of all this for income formation are perhaps uncertain. One possibility is that labor unions will push very hard to squeeze out whatever increase in disposable real income is possible with the existing tax-transfer system - with accelerating inflation as a likely result. Another possibility would be that the government succeeds in

CHART 17, "Tax transfer system elasticities"



A: A married taxpayer who is the only income earner in a family with one child or a single taxpayer with one child. (Tax deduction admitted.)

B: A married taxpayer who is the only income earner in a family without children. (Tax deduction admitted.)

C: A single taxpayer without children or a married taxpayer without children whose cohabitant is an income earner. (Tax deduction not admitted.)

SOURCE: [Matthiessen, 1973]

"bribing" labor unions to stop these attempts by instead offering them tax reductions. This was tried in Sweden in 1973-74, with some success. The government obviously plans to try to do the same in 1975. There is some doubt, however, whether labor union members are satisfied with a situation where factor income in real terms falls or increase very little even if they are compensated by tax cuts and/or increased transfer payments. This doubt is based on experiences in 1974 when real disposable income increased very much, about 7 percent, due to increased transfer payments and tax reductions, at the same time as factor income in real terms changed very little - and considerable dissatisfaction was expressed by labor union members over an "unfavorable" outcome of bargaining! Moreover, the labor unions come in a rather awkward position when they can hardly influence the real incomes of their members - except by political actions.

The link disposable money income - disposable real income

Two of the methods available for modifying the link between disposable money income and disposable real income are: (i) indirect taxes and subsidies, (ii) price regulations. (Public consumption could, of course, analytically be regarded as part of real disposable income and hence part of the link between income and disposable rest income. However, I have chosen, for reasons of convenience of exposition, to include public consumption instead as part of the link between real disposable income and welfare.)

(i) Indirect taxes and subsidies

The only (impact) effect on the distribution of real income of a *general* indirect tax - with the same tax rate for every good - is the fact that tax payments on savings are postponed until the savings are used for purchases of consumer goods; consequently, an "extra" interest rate gain is obtained on that part of income which is saved. As has been shown in the theoretical literature, a general tax on consumer goods can, in fact, be regarded as a combination of a proportional income tax and a general interest rate increase.[1] As indirect subsidies may be regarded analytically as negative indirect taxes, these arguments can be immediately applied, *mutatis mutandis*, to indirect subsidies as well.

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[1] Assuming that purchases of consumer goods are made in the home country rather than abroad.

Differentiated indirect taxes and subsidies - with different tax rates for different goods - have more clear-cut effects on the distribution of real income; the main principle being of course that low-income groups gain, relative to others, by (1) subsidies on commodities with a low income elasticity ("necessities"), and (2) taxes on commodities with a high income elasticity ("luxury goods").

A main reason why highly selective indirect taxes (or subsidies) have not been used more in redistribution policies is presumably that they distort the allocation of resources - from the point of view of conventional optimality criteria by creating a deviation between how the proportions of output *can* be changed (due to technological conditions) and how the consumers *valuate* such changes (or, more technically, by causing deviation between marginal rates of transformation on the production side and the marginal rate of substitution on the consumption side). Thus, high selective indirect taxes and subsidies may imply rather large violations of the principle of "consumers' sovereignty".

The most widely used indirect taxes and subsidies in redistribution policies are perhaps: excises on "luxury goods" such as cosmetics, furs, diamonds, and a number of durable consumer goods; and subsidies on "necessities" such as medicine, elementary education, housing, transportation for the elderly, help for handicapped people, etc. However, it is obvious that many indirect taxes and subsidies have rather dubious effects on the distribution of income, sometimes because of misconceived notions by the authorities about the income distribution effects, sometimes simply because the taxes (subsidies) have been introduced for quite different reasons than to influence the distribution of income. One example is *general* subsidies for housing, as the income elasticity of demand for housing seems to be rather close to unity, which means that the vertical distribution of income is not greatly affected. Other examples are subsidies for cultural activities (theater, opera, etc.), and taxes on tobacco and alcohol; these measures obviously, seen in isolation, turn the income distribution in favor of high-income groups.

i.1 Swedish figures

There have been only very partial attempts in various countries to study the effects of indirect taxes on the distribution of real income. One early such attempt can be reported from Sweden, where Mats Hellström has tried to measure the "immediate impact" on the income distribution of the total tax system. The study had to rely on very schematic assumptions about the shifting and incidence of taxes: that the income tax is carried by the taxpayer himself, that indirect taxes are shifted onto prices by 100 percent, and that profit taxes are shifted onto prices by 25 percent. (Transfer payments were not included in the study.) The results, referring to 1966, are summarized in Chart 18.

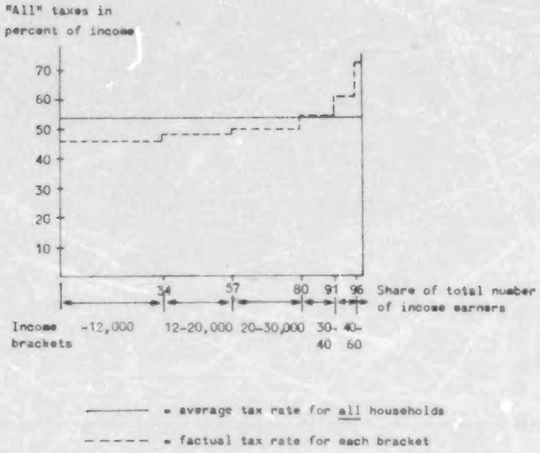
The average tax for all taxpayers (or rather households) in the population is calculated at 54 percent for 1966. According to the chart, the lowest income group, with incomes below Skr. 12,000, gained an amount of 8 percent of their incomes on the progressive elements in the tax system (the difference between the solid and the broken line in the interval 0-12,000). The income class immediately above gained somewhat less on the progressive elements, while top-income receivers in the chart, with an income above Skr. 60,000, lost about 18 percent of their income due to the progressive elements. A study for the very high-income receivers, with incomes for instance above 150,000, would give even stronger effects of the progressiveness - taxes being some 80-90 percent of income, which causes a loss on the progressiveness of 20-25 percent of their incomes.

Thus, while the income redistribution effects of the tax system in 1966 were rather modest, though far from negligible, for the bulk of income receivers below Skr. 30,000 (i.e. 80 percent of the income receivers at that time), the progressiveness meant quite a lot for very low and very high income receivers, particularly people above the level of Skr. 60,000. The progressive effects were entirely caused by the income tax; the indirect taxes in Sweden had a regressive effect (mainly due to taxes on tobacco and alcohol).

Studies of the redistribution effects of both taxes and transfers for the early 1970s show a stronger equalizing effect. This is illustrated in a study by Franzén-Lövgren-Rosenberg for 1970, based on a sample of 16,000 households [Franzén, Lövgren, Rosenberg, 1975]. The results, illustrated in Table 4, indicate that the second lowest income group, with a factor income of Skr. 0-25,000, gained about 25 percent of their factor income on the progressiveness of the tax-transfer system, whereas people with incomes above Skr. 100,000 lost 20 percent. (The assumptions about shifting were about the same as in Hellström's study: no shifting of income taxes; 100 percent shifting on prices of indirect taxes on commodities; 100 percent shifting (downward) on wages of labor taxes; and 50 percent shifting on prices of profit taxes).

CHART 18

Direct impact of taxes on income distribution of households, 1966



Source: [Hellström, 1967]

TABLE 4

Gain in real income (in percent of factor income)[1] of existing tax and transfer systems relative to proportional system 1970 (married couple)

	Factor income class (Skr)						
	0-10,000[2]	10,000-25,000	25,000-40,000	40,000-60,000	60,000-100,000	100,000-	Total
Total taxes	16.3	7.0	0.4	-2.1	-5.2	-11.5	-1.3
of which personal income tax	25.6	13.0	3.5	-2.7	-9.1	-15.0	-0.6
Total transfer payments	73.9	19.5	-1.4	-5.8	-7.0	-8.6	-1.1
Total taxes and transfer payments	90.0	26.5	-1.0	-7.9	-12.2	-20.1	-2.4

Data: Figures based on general income tax returns of 16,000 households.

Source: [Franzén, Lövgren, Rosenberg, 1975]

[1] "Total net income" for tax purposes.

[2] i.e. 0-9,999, etc.

(ii) *Price regulations*

The most obvious examples of the use of price regulations as elements in income redistribution policy are perhaps found in housing and agriculture.

Rent control has, at least in the short run, redistributed income from house-owners (and the government) to tenants. In the Swedish setting, we may say that *rent control* during the sixties has tended to redistribute about 1 percent of national income from house-owners and the public sector - by way of lower tax revenues from house-owners - to tenants [Bentzel, Lindbeck, Ståhl, 1963].) However, there have also been a number of serious "side effects" of this regulation:

(1) Permanent excess demand for housing has emerged, with long queues (in Stockholm married couples with one child had to wait about 4-6 years for an apartment in the middle of the 1960s); (2) market signals from the demand side do not reach the supply side (in Sweden, house owners, mainly municipalities and cooperations, have been able to neglect the preferences of consumers for 25 years by building huge apartment houses rather than small houses); (3) black markets have developed, where low-income groups are not in a particularly favorable position; (4) a lack of cost consciousness has probably developed in new production when every new apartment could be rented out easily. Thus, the economic and social costs connected with rent control are considerable, perhaps particularly in a long-run perspective. (See [Bentzel, Lindbeck, Ståhl, 1963].) It is worth noting that the interest among house owners (i.e. municipalities and cooperations) to adjust building changed *dramatically* in 1973-75 when the market for new houses was finally brought back to equilibrium. For instance, when more and more apartments in new houses become empty, the proportion of small houses shifted from about 25 to about 60 percent of production, and house owners suddenly became interested in improving the service and environment in the large apartment and cooperative houses. The welfare gains of equilibrating price formation, rather than a permanent excess demand brought about by price control, was dramatically illustrated.

Moreover, the distribution effects of rent control *within* the sector of tenants are not always very "favorable" from the point of view of prevailing evaluations. It is true that rents have been kept down for many old people with low incomes, as they often live in old houses where rents tend to become relatively low in a rent-controlled system; in this respect rent controls function as a kind of "pension system". Moreover, families with children would also expect to gain on low rents - if they have been able to get an apartment! - as housing consumption expenditures as a share of income rise with the number of children. However, it is not correct to say that low-income groups are favored relative to high-income groups, as housing expenditures seem, as already mentioned, to be about proportional to real disposable income (the income elasticity of housing demand for apartments being not very far from unity).

Moreover, in a rent-controlled housing market those who have been "forced to live in new, and therefore expensive, houses (because of the excess demand situation) are discriminated against. Many of this group have relative low incomes per capita (or per "family unit"); one example is young families with children. Others subjected to discrimination are people who move from one town to another and immigrants, many of whom have in fact compelled to obtain apartments by way of the black market.

The distribution of housing consumption, too, becomes rather arbitrary, as personal contacts, relations with employers, the ability to use the black market, etc. are important ways of getting an apartment in rent-controlled housing markets. (In the rent-controlled housing market in Sweden during the post-World War II period, these latter methods of getting an apartment seem to have been much more common than obtaining an apartment via the public queues.)

Thus, the distribution effects of rent control became quite arbitrary within the sector of tenants. The reason is that the "favors" to tenants in rent-control systems are tied to the house (and its age), rather than to the tenant.

Whereas rent control is designed to redistribute incomes from producers to consumers, agricultural price policy has usually had exactly the opposite purpose: to redistribute income from consumers to procedures. In Sweden, we may say that approximately 1.5 percent of the national income during the sixties was redistributed in this way. However, the redistribution among consumers will be rather unfavorable for low-income groups, as these conrume a larger fraction of their income on food than do higher income groups, the income elasticity of demand for food being smaller than unity.[1]

It is well known that this type of policy is also connected with important loss of efficiency in the allocation of resources, nationally and internationally, both between agriculture and other sectors, as well as within the agricultural sector.

However, when world market prices for agriculture products in 1974 suddenly became higher than the Swedish protected level, the government shifted from supporting farmers to supporting consumers, by way of food subsidies. This had a clear income equalization effect.

Thus, it is obvious that rent control and agricultural price support are rather inefficient methods of redistributing incomes in two senses: (1) there is a considerable "overspill" of the redistribution to people who are not in low-income groups, at the same time as many low-income people are not helped at all or are even harmed; (2) the social and economic costs in terms of inefficiencies in the economy are probably considerable, as compared to alternative methods of income redistribution (in particular, of course, as compared to the "theoretical ideal" of lump-sum transfers to low-income groups).

The link real disposable income - welfare

The next, and most complex, step in the chain between factor income and welfare is the link from real disposable income to welfare. Three obvious components of this link are (1) private consumption, (2) public consumption, and (3) wealth (and perhaps the change in wealth, i.e. saving). As the role of wealth has already been discussed, I will concentrate here on private and public consumption. I will also discuss very briefly, other types of "welfare indicators".

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[1] As compared to the hypothetical case where the support of peasants is implemented as "deficiency" payments, and financed for instance by a general sales tax, we can estimate that low-income groups - below the lower quarter in the income distribution - have lost about 1.2-1.3 percent of their income due to the agricultural price support in Sweden, as compared to a system where the support to farmers had been financed by a sales tax [Gulbrandsen-Lindbeck, 1973, and Karm-Nilsson, 1973]. Moreover, the transfers are largest, particularly in absolute terms, to large farmers.

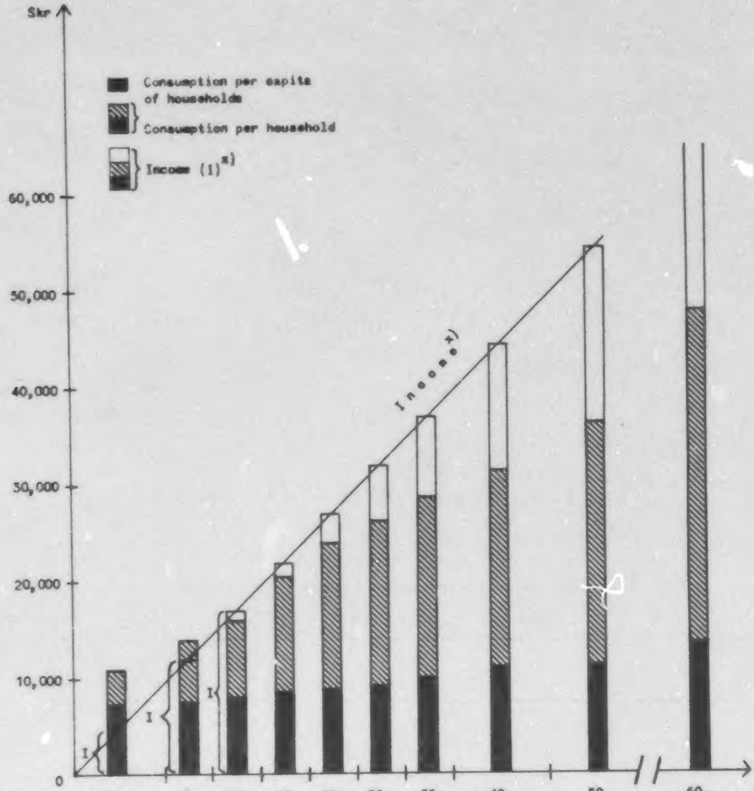
(i) Private consumption

Private consumption would be expected to be considerably more equally distributed, among individuals and households, than yearly disposable real income. One obvious reason is that consumption is most likely, and according to established economic theory and empirical studies of consumer behavior, related to disposable real income over a much longer period than a year; this is often expressed by the "permanent income" or the "life-time income" hypothesis. Young people, who look forward to higher yearly incomes later, would be expected to consume more than their disposable income, and the same holds for people with temporarily low yearly disposable incomes - and vice versa for people with temporarily high annual disposable income. For those reasons, the distribution of consumption may, most likely, be regarded as a better proxy than yearly disposable income for permanent or life-time income. In fact, yearly income explains a very small fraction, perhaps less than 5-10 percent, of the variance of annual consumption for micro data. (See, for instance [Thore, 1959].) This means that progressive taxes on consumption (so-called "expenditure taxes"), in principle, are much more appropriate devices for redistribution policy than are progressive taxes on yearly incomes. In fact, progressive consumption taxes compensate also, to some extent, for the lack of efficiency of wealth and inheritance taxes, from the point of view of redistribution. They also compensate, to some extent, for the arbitrary redistributions of wealth that have followed the huge, and largely unexpected, inflation and the substantial changes in relative prices of goods and factors (such as land) during the early seventies in many countries.

Chart 19 illustrates the difference between the distribution of yearly income and of private consumption in Sweden. As is seen from the Chart, consumption is considerably more evenly distributed than factor incomes - reflecting, of course, both the fact that disposable income is much

CHART 19

Consumption ordered by income groups (households) 1969



Factor income group (1,000 Skr)	0– –9	10– –14	15– –19	20– –24	25– –29	30– –34	35– –39	40– –49	50– –59	60–
Interval midpoint (1,000 Skr)	4.5	12	17	22	27	32	37	44.5	54.4	..
Persons per household	1.50	1.91	1.97	2.44	2.76	2.87	2.86	2.82	3.24	3.51
Number of households (thousands)	491	314	302	347	344	260	267	368	173	226

x) Interval midpoint of each income group.

Data: Interviews and bookkeeping of households.

Source: Central Bureau of Statistics, The Family Expenditure Survey 1969, P 1971:9.

more evenly distributed than factor income, and that consumption is more tied to "permanent" or "life-time" income than to yearly income. However, the most dramatic message from the chart is no doubt that *per capita* consumption of households rises *very little* with rising factor income, largely because higher-income-group households have more members than low-income-group households (among which pensioners are an important group.

(ii) *Public [illegible]nsumption*

Provided expenditures for public consumption are not financed by strongly regressive taxes, several of these expenditures probably can in a society have a rather important equalizing effect on individual welfare. In some countries, they probably also do so, though it is not easy owing to theoretical and empirical difficulties to see whether or not this is actually the case. One example is elementary school services - as compared to a situation where such expenditures were privately financed. The same holds probably in many countries for public health and hospital services - if these are both measured as the *costs* of the services given and as *the subsidy element* in the health insurance system that is implied in the free, or close to free, public health services. One further reason for this effect is that low-income groups often have poorer health than high-income groups. Moreover, on *yearly* statistics, there is an equalizing effect of public health services also because a relatively large fraction of health services winds up with old people, whose disposable money income is usually considerably below the average.

Public university outlays, by contrast, most likely wind up among high-income groups - both if these outlays are "distributed" to the parents, or to the life-income stream of the recipients of the education. (If expenditures for higher education are measured with reference to the *factual yearly* incomes of those who receive the educational services - i.e. the students - it would look as though these expenditures would, in fact, have an *equalizing* effect on the distribution of income, or welfare - a good illustration of the risk involved in relying on *yearly* incomes data in analysis of distribution policy issues!)

A study by Franzén-Lövgren-Rosenberg claims to have shown that public consumption in Sweden is rather equalizing on the distribution of real income, or welfare [Franzén, Lövgren, Rosenberg, 1975]. Some of the results are illustrated in Table 5, which shows by how many percent real income is raised, or lowered, by public consumption, as distributed in Sweden, compared to a situation where these expenditures were distributed proportionately to factor income. It would seem that elementary education and health are the components with the greatest equalizing effects. (The figures for education to people above 19 years of age are misleading as these expenditures have been "allocated" to the students themselves, with low yearly income, rather than to the incomes of their parents, or to their life-incomes.)[1] According to the study, married couples with an income between Skr. 10 and 25,000 would have gained about 35-40 percent (of their factor income), whereas married couples with incomes about Skr. 100,000 would have lost about 20-30 percent - as compared to a proportional distribution of such services.

(iii) Wealth and savings

It would seem that fewer attempts have been made in most countries to redistribute wealth than redistribute income. This is somewhat surprising, as private wealth is probably an extremely important component of individual welfare, by providing security, independence and liquidity to the individual. This was, of course, the reason for including the array of wealth as a separate argument in the preference function presented at the beginning of the paper.

Progress has been modest also in the field of the redistribution of "conventional" wealth between generations. If a further drastic curtailment of the rights to inherit wealth is regarded as undesirable because of various "side effects" to society - such as the implications for family firms, entry of new firms, and the general pluralism

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[1] One study for the U.S. claims to have shown that the effects of public consumption, as financed, are regressive on the distribution of real disposable income [Maital, 1973]. Another study came to the conclusion that subsidies to higher education in California had regressive effects on the distribution of income of families [Hansen, 1970].

TABLE 5

Gain in real income (in percent of factor income)[1] of existing government expenditures on goods and services relative to a proportional distribution (married couples)

	Factor income class (Skr)						
	0-10,000	10,000-25,000	25,000-40,000	40,000 60,000	60,000-100,000	100,000-	Total
Total government expenditures on goods and services[2]							
assumption a	315.8	39.8	-6.5	-18.8	-24.3	-32.7	-6.8
assumption b	273.7	34.6	-3.0	-12.0	-15.0	-21.2	-2.2
of which							
Education							
Students 7-19 years old	15.8	12.1	3.8	0.8	-1.0	-4.3	2.5
Students over 19[3]	19.7	-1.1	-1.8	-2.0	-2.2	-2.2	-1.7
Health	190.4	12.0	-4.5	-7.3	-8.2	-8.9	-2.5
"Collective goods"[4]							
assumption a	42.1	5.2	-3.5	-6.8	-9.3	-11.5	-4.7
assumption b	0.0	0.0	0.0	0.0	0.0	0.0	0.0

[1] "Total factor income" for tax purposes.

[2] Assumption "a" means that collective goods have been distributed in the same amount to every household, the same per capita distribution of collective goods. Assumption "b" means a distribution of collective goods in proportion to income.

[3] Expenditures on education to students above 19 "distributed" here to those who get the education (rather than to their parents).

[4] "General expenditures".

Data: Figures based on general income tax returns of 16,000 households.

Source: [Franzen, Lövgren, Rosenberg, 1975].

in society - perhaps it would at least be possible to add a new system of inheritance to the existing one, by letting every individual start life with a "claim" on the government - a claim which could be used for education, consumption during his working life, or old-age pensions (perhaps with certain restrictions on the use of the claim that force the individual to save some minimum amount of it for his old age).

(iv) Welfare indicators

Perhaps we can say that the emphasis on either income and wealth or on the various other variables in the earlier presented schematic social preference function, equation (1), illustrates two different approaches to the analysis of welfare. In the first case we emphasize the command over resources, whereas in the second the emphasis is on utility-creating variables. In traditional economic theory of consumer behavior these approaches are, of course, combined by assuming that the individual maximizes welfare subject to a budget restriction that defines his command over resources - and by making interpersonal comparisons by way of a ("Bergsonian") social preference function, such as equation (1).

In the growing literature on "social indicators", variables expressing command over resources and utility-creating variables are both used, often quite unsystematically, as indices of the welfare situation of individuals. Some authors, such as Titmuss, have emphasized "command over resources" whereas others, such as some U.N. studies, have emphasized welfare indices. One reason why the distinction between resources and utility-creating variables is often not made very explicit in these types of studies is probably that one and the same variable can often be regarded as belonging to both groups, for instance variables such as wealth, education, and health.

A basic idea behind much of the work on "social indicators" is probably that the redistribution of economic resources (purchasing power) is not the only, and perhaps not always even the most important, way to redistribute welfare. Significant additional effects could conceivably be achieved by attempts to influence, in a more "direct" and selective way, the various "welfare-creating" variables.

This view has no doubt been a major motivation behind social, health, cultural, and educational policies in various countries. Public child welfare, and public health in general, the spreading of information about nutrition, family planning, housing policy, the provision of public sports and recreation facilities are all examples of this. City planning, community development, and policicies designed to clean up the air and the water in low-income neighborhoods could conceivably also be important tools in welfare distribution policies.

Swedish experiences

The studies of social indicators, or levels of living, by the Swedish Low-Income Committee included nine social indicators [Johansson S., 1971]. Perhaps they can be "reclassified" as follows:

I. Availability of human-capital resources

(1) education, (2) health, (3) family conditions

II. Capacity utilization of human resources

(4) employment, (5) political activity

III. Financial resources

(6) income, wealth and purchasing power

IV. Consumption of certain specific "basic goods"

(7) nutrition, (8) housing conditions, (9) leisure and recreation

Most of these variables are rather similar to, or can at least be treated as "proxies" to, some of the arguments in the social preference function laid out in the beginning of this paper, equation (1).

A basic conclusion of the studies was that the levels of all the various living indicators were systematically (positively) correlated with the wage rates of people. This is illustrated in Table 6 where eight of the nine indicators used by the Low-Income Committee are presented; (the ninth, education, has already been discussed).[1]

Social mobility

It might be argued that changes, i.e. "mobility", in social and economic positions of individuals, perhaps in particular relative to the

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[1] Additional, and more detailed, information on the living conditions of various income groups, and socioeconomic groups, is given in Tables A:5 and A.6 in the Appendix.

TABLE 6

Percentage of employees in different wage categories who are characterized by a certain ("low") value for some standard of living indicators

	Wage under 7 Skr/hr	Wage over 7 Skr/hr	Wage over 10 Skr/hr	Wage over 15 Skr/hr
Health:				
Poor psych. condition	32	24	20	19
Pain in limbs	8	8	6	4
With motor disturbance or severe motor disturbance	10	7	5	3
Bad dental condition	9	8	6	3
Childhood conditions and family relations:				
Father belonged to soc. gr. III	62	58	55	43
Economic difficulties during growing years	23	27	26	19
Conditions of employment and at place of work:				
No right to one month's notice	36	32	27	18
No right to be sick over long period	13	6	5	4
Physical exhaustion from work	24	19	15	10
Had been unemployed at least two months	15	18	17	12
Political resources:				
"Politically poor"	29	13	8	4
Economic resources:				
Owns no car (applies also to wife/husband)	69	33	25	18
Owns no boat (applies also to wife/husband)	94	85	83	80
Owns no summer cottage (applies also to wife/husband)	92	78	74	66
Has a cash margin in bank	39	57	63	77
Eating and drinking habits:				
Unsatisfactory diet	37	26	24	20
Unsatisfactory tobacco consump.	5	11	13	14
Unsatisfactory alcohol consump.	2	9	12	21
Housing conditions:				
Overcrowded according to 1965 definition of overcrowding	21	20	18	9
Low standard of equipment in home	17	7	4	2
Leisure and recreation:				
Has not had stay at summer cottage	72	57	51	41
No holiday trip within or outside Sweden	48	39	36	32

Source: [Sundbom, 1971]

position of the parents, are an important part of a "just" society, regardless of whether or not the horizontal or vertical distribution of income and welfare in the society is "even". More specifically, it is possible that many persons would regard a society with high social mobility as more egalitarian (less of a "class society") than another society, even if the former were characterized by somewhat *larger* inequalities of income at every point in time.

Suppose, for instance, that in society A there are relatively small variations in income between different professions, but that every child gets the same job as his parents, whereas in society B there are larger differences in income between various professions, but the probability that a child would wind up in a given profession is here independent of the profession of the parents (for given "inherent genetic abilities" of the child). Which one of these societies should be regarded as more egalitarian?

To answer the question, we have, of course, to evaluate "equality of income" against "equality of opportunity" (social mobility). Some people might, in fact, go a step further and argue that income differences *by themselves* bring a net welfare contribution to a society, as an individual might attach utility to *the possibility,* in principle, of raising his personal income and status, reflecting freedom of choice and the possibility for the "self-realization" of individual ambitions.

The issue is even more complicated than suggested so far, as there may be complex correlations and interdependences between income differences and social mobility. For instance, in a society with *very large* income differences, the differences in opportunities to develop skills may be so great that social mobility may be kept *down* by the income differences, even though the economic incentives to "climb" are great by themselves (because of the big income differences). In other words, the income differences may *over time* have contributed to establishing a class society with low social mobility because of institutions and attitudes developed in the society with very great income differences. It is possible that in such a situation *smaller* income differences could, in the long run, via induced changes in the class structure, institutions and attitudes to increase social mobility - in particular if the class structures, institutions and attitudes that are unfavorable to social mobility are torn down by other means as well. In fact, this is perhaps what has happened during the last decade in most of the presently highly developed countries.

However, in other situations, a reduction in income differences could very well reduce social mobility. For instance, let us assume that the expansion of higher education in the developed countries will considerably reduce the rate of money return on hgiher education, and on "climbing" to qualified non-manual work. It is quite possible that the interest in higher education will fall more for children of manual workers than for children from non-manual workers - because of the cultural influence from the family. This could mean that smaller income differentials could very well result in lower social mobility. It should be emphasized that this should not necessarily always be regarded as a disadvantage. Some people may very well argue that the important thing is not thattchildren of manual workers "climb" to non-manual positions, but that the income and status of manual work is increased, and that, in fact, it is good that a considerable amount of talents stay in manual positions. Thus it is necessary to look at several dimensions of social mobility simultaneously: (1) movement of individuals over different occupations; and (2) movement of occupations over income, power, status, and welfare class.

Social mobility seems, in some Western countries, to have increased during the last century, and especially in recent decades, mainly perhaps because the relative size of the "upper" and "middle" classes has increased [Miller, 1975]. This means that more and more children from "lower" classes tend to wind up in higher social groups. Both the school system and the labor market would then have tended to become more "meritocratic" and less "class-determined" than earlier. It is therefore probably correct to say that an important trend in the "developed" societies during this century has been some lowering of "class barriers", though it is difficult to say what the "driving forces" in this process have been - the general increase in the level of incomes among the masses of previously poor population groups; the reduction in the dispersion of disposable income and per capita consumption; the expansion of public services, such as in education and health, for the previously disadvantaged majority of the population; or perhaps a more general acceptance that "top jobs" should be obtained on the basis of personal qualifications rather than by nepotism or "class background".

However, it is well known, as earlier mentioned, that the social, occupational and educational status of parents still has a very strong effect both on length and type of education of children, as well as on occupational attainments after the completion of education. In particular, many studies indicate that the shifts in social mobility to top positions in the business community and the public administration have not been exactly "dramatic" in any developed country.[1]

The international literature is rich with studies showing that social positions of children are strongly correlated with the social positions of parents, and also that the schools function as a "tracking system" for children from different types of homes - with the probability that students will wind up on a specific track strongly correlated with family background. In previous "class societies" these tracks were largely related to income differences and differences in aspiration levels of children and their parents. It would seem that the "tracking system" today is much more related to the differences in school performance of parents and children - through the entire school system; see e.g. [Coleman, 1966; Plowden, 1967; Karabel, 1972; Bowles, 1972; Husén, 1969]. Thus, the inheritance of human capital and values is probably much more important for social mobility today than inheritance of "traditional" capital - in the highly developed countries.

Swedish experiences with welfare indicators

In the case of Sweden, the extent of social mobility is illustrated in a study by Robert Eriksson for the Low Income Committee, reflecting conditions in 1968. According to this study, the fathers of only 27 percent of the people in social group I were also in this group, which partly reflects the above-mentioned expansion over time in the relative size of social group I (Table 7). About 45 percent of the people in social group II were in the same group as their fathers, and the fathers of 70 percent of those in social group III were in that same group. Another way to illustrate the existance of a considerable social mobility is that not more than about 50 percent of those born in social group I or II also wound up in the same social group as their fathers; two-thirds of those born into social group III wound up there themselves.

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[1] However, most studies probably underestimate social mobility in this sense, as part of the mobility takes place in "two steps": if a manual worker shifts to a non-manual position during his lifetime, and his child also winds up among non-manual employees, this type of "two step" social mobility is easily lost in studies that only compare father/mother-child occupations.

That Sweden has still far from "complete" social mobility is illustrated by the finding in the study that a child born into social group I has a 14 times larger probability of winding up in social group I than a child born into social group III. Social mobility, in this sense, is greater between social groups II and III. The prospects of a child from social group II winding up in social group III are about 20 percent less than they would be if the chances were evenly distributed, and the prospects of a child from social group III winding up in social group II are about 15 percent less than they would be if the distribution of social groups was independent of social origin. The prospects of a child from social group I winding up in social group II are about the same as in the case of evenly distributed chances [Eriksson, 1971, pp. 75-78].

TABLE 7

Social groups of father and children

Father's social group	Own social group: I	II	III	All
Social group I	127 000	95 000	32 000	254 000
Social group II	213 000	899 000	869 000	1 981 000
Social group III	122 000	1 052 000	2 100 000	3 274 000
All	462 000	2 046 000	3 001 000	5 509 000

Source: [Eriksson, R., 1971]

Available data indicate that social mobility, in these senses, has increased recently in Sweden. Whereas in 1950 25.5 percent of the sons of manual workers wound up in non-manual occupations, the corresponding figure in 1971 was 32.3 percent. Similarly, whereas 3.5 percent of the sons of manual workers wound up in the "elite" group, the corresponding figure in 1971 was 11.3 percent [Miller, 1975, p. 415).

Data from the school system provide additional information on social mobility. Children from the "highest" social strata, social group I ("upper class"), are strongly overrepresented on all "tracks" that lead to "high" social positions. They choose theoretical lines at high school and lyceums; they proceed more often to university studies; and they more often choose types of university training that lead to high-income jobs, relative to children from social group II ("middle class") and, in particular, social group III ("working class").

Table [illegible] gives a schematic picture of the passage through the school system of children of workers (approximately social group III) and non-manual workers (approximately social groups I and II), according to a study by B. Gesser and E. Fasth [Gesser-Fasth, 1973].

The most important factors that explain the number of school years are still the social groups and the profession of the father, though nowadays 23 percent of the university students come from social group III (comprising 58 percent of the population), as compared to 8 percent thirty years ago [L. Johansson, 1971], which no doubt reflects an achievement in social mobility policy.

Young people (20-24 years) have, on the average, about two more years of schooling than the older generation (55-75 years), and more than one and a half years than middle-aged people (35-45 years); (see Table A:7 in Appendix). However, the "vertical" dispersion of the number of school years, i.e. the "size distribution" of school years, has not changed much.

Perhaps we can, schematically speaking, say that social mobility in the Swedish school system has passed through three different phases during the post-World War II period. During the first period, mainly the fifties, social groups I and II took advantage of the expansion of higher education. At a later stage, mainly during the sixties, social group III gained increased ground in higher education, relatively speaking, when the number of students "exploded". Later on, however, when the number of students started to fall again at university level, during the first half of the seventies, it is possible, though we do not know for sure yet, that social group III has lost ground again relative to other groups - perhaps for the earlier suggested reason that children from this group are less willing than children from other social groups to invest in human capital at very low money returns.

Future prospects

Even if social mobility in the developed countries in the West is far from "complete", it would certainly be misleading to characterize

TABLE 8

Social origin and choice of education, an estimate[1]

	Category	Total	Workers' children	Other children
	A. No.of young persons born 1952	113,000	56,500	56,500
Level 1	B. Percentage who went to upper secondary school, i.e. B/A	27%	15%	38%
Level 2	C. Percentage who went to upper secondary school and continued with studies; C/B	40%	33%	43%
	Percentage of the number of young persons born 1952 who went to upper secondary school and continued with studies; C/A	11%	5%	16%
Level 3	D. Percentage who went to upper secondary school and later to university and college; D/B	25%	21%	26%
	Percentage of the number of young persons born 1952 who went to upper secondary school and later to university and college; D/A	7%	3%	10%
Level 4	E. Percentage who went to upper secondary school and continued with higher education; E/B	10%	6%	12%
	Percentage of young persons born 1952 who went to upper secondary school and continued with higher status education; E/A	3%	1%	4%

Source: [Gesser-Fasth, 1973].

[1] The table has been constructed as follows:

It is based on young people born in 1952. The number of fathers belonging to the working class and having children of this age has been estimated as 50 percent.

These two assumptions have been combined with data taken from the Statistical Yearbook concerning the number of persons born in 1952 and the number of students leaving secondary school at the end of the third year's course in the Spring of 1971. To this material has been added data concerning the percentage of young people from workers' homes and from other social strata who, according to Gesser's investigation, have ended up at different educational levels.

these societies as "intergeneration class societies". Available studies suggest that the correlation coefficient between the occupational status of fathers and sons is about 0.4, which means that only 0.16 (0.4^2) of a person's status is determined by the status of the father. Accordingly, only about 0.025, i.e. 2.5 percent, of a person's occupational status would be explained by the status of the grandfather [Blau and Duncan, 1967]. Studies on the correlation between incomes of parents and their children suggest the same conclusion. For instance, new studies indicate that the correlation between the relative income position of father and son is not more than 0.23, i.e. that the father's income position can explain only 5 percent of the income position of his son.[1]

However, we may nevertheless be entitled to ask why the success has not been greater, so far, in the attempts to increase social mobility in the school and occupational system? The two most likely reasons are perhaps (1) the influence of the home environment (economic resources and cultural patterns), and (2) possible genetic differences between children from different social groups.

A large number of empirical studies from different parts of the world have established the great importance of the home environment, both for success in school and for the career on the labor market. This strong effect of the home environment is probably due not only to intellectual stimulation and the transfer of career ambitions, but also to the intergeneration transfer of the type of manners of speech, behavior and general "life style" that is highly valued in the higher echelons of the labor market - perhaps partly because employers probably prefer that their employees behave approximately in the same way as they do themselves [Bowles, 1970].

Moreover, if education has a strong "leverage effect" on the influence of the family background, as discussed earlier (p. 278) the "equalizing" effects of the school system could be considerably delayed.

[1] $r = 0.23$; $r^2 = 0.05$. Information of unpublished calculations by Jacob Mincer.

We have much less information about possible *systematic genetic differences* between children from different social groups, though the issue has been discussed somewhat in the literature on the risks for the development of a "meritocratic" society. More specifically, is there, after a period of high social mobility, a possibility (risk) that systematic differences in genetic factors will sooner or later appear, and be drastically strengthened, between different social groups? The reason would be that when the institutional barriers in the "class society" are torn down, and the income of parents plays a less and less important role for the education and occupation of children, differences in occupation and income will be more and more connected with people's inherent natural abilities. If this happens, it could mean that a period of increased social mobility may ssoner or later be self-defeating; we could within a few generations have created a new "class society" based much more than earlier societies on genetic factors - in fact a class society that may be regarded by many people as much more "hopeless" than previous class societies which have perhaps been based more on "arbitrary" social conventions and institutions. If this should happen, high social mobility could perhaps be a parenthesis in the development of our societies.

However, several questions can be raised about the realism of this perspective. *First* of all, people may marry so much across the "class borders" that the genetic stratification will never be extreme. This kind of "mixing effect" will be particularly strong if factors of limited importance for achievements on the labor market (such as "beauty"?) are important considerations for marriage. *Secondly*, there are strong random elements in the hereditary process. The correlation in genetic properties between parents and children is much less than unity - *perhaps* about 0.5, according to several studies [Conlisk, 1974]. *Thirdly*, the relative status of different kinds of jobs may change so much in the future that it will be more and more difficult to say what the "high status occupations" are, particularly if wage differentials in the future are less correlated with "status positions" than earlier. Thus, the risks for a new meritocratic class society may not be an inevitable outcome of an "open society". However, I think it would be foolish to dismiss the problem entirely.

Chapter IV

THE EFFICIENCY OF DISTRIBUTION POLICY

The instruments

In a market system, where factor returns are largely determined by demand-supply relations - though modified by institutional conditions and conventions - and where the distribution of the endowments (ownership) of factors is considerably influenced by biological, historical, and institutional factors, there is hardly any reason why the resulting distribution of factor income, wealth, economic power, and welfare should reflect any particular ethical principle. Thus, it is not surprising that the political process to a large extent reflects attempts to modify the distribution of income, wealth, economic power, and welfare in society. Some of the conclusions in this paper about the feasibility of such attempts could perhaps be summarized as follows. It is convenient to analyze the various policy measures in the context of the earlier discussed "chain" of concepts - from factor income to welfare.

The first "link" in the chain, factor income, may be influenced by policy measures that change (1) the ownership of factors; (2) the returns on the factors; or (3) the capacity utilization of the factors. The main conclusion of the discussion was perhaps that a redistribution of human capital, by appropriately distributed investment in human capital, is probably the most promising method of influencing the distribution of factor income. It is then important to remember that it is the distribution of this investment (and the costs of the investment) that is important, rather than the total volume of investment. It is also important to recognize that investment in human capital is a much wider concept than traditional education for young people; it comprises adult education, on-the-job training and health care as well. There is, in fact, no reason why traditional education of young people would be the most important of these items for influencing the distribution of welfare in the highly developed, "mixed economies" of today, where literacy has long since been achieved for practically the whole population.

In fact, as equilization effects of investment in human capital presuppose that the investments are given in particular to people who otherwise would have a low income, there is a strong case for adult education. For it is much easier to identify low income groups on the labor market than in the school system, as some persons with many years of schooling will get a relatively low income - and vice versa for some people with a short education.

One reason why investment in human capital is potentially important for distribution of welfare is that it influences, in principle, (1) the ownership, (2) the returns, and (3) the capacity utilization of labor and human capital. The main limitations of this method of influencing the distribution of factor income are perhaps: (1) that it often takes rather a long time to achieve considerable effects (in particular if the investment is confined to young people); (2) that the willingness of people to undertake education may fall when the private return goes down by way of lower relative wages for educated employees; (3) that the return for society (the social rate of return) may become rather low, relative to the return on physical investment, if education is highly subsidized; (4) that "pig cycles" in the production of students may occur if students "overreact" to changes in the prospects on the labor market; and (5) that a heavy concentration of educational resources on less talented people (to raise their relative incomes), at the expense of more talented ones, may result in inefficiencies and losses in top cultural and intellectual achievements in society. Metaphorically speaking: should a "new Mozart" be given the best available teaching resources in music, with large potential gains to the welfare of society as a whole, or should these resources instead be concentrated on musically less talented people, using the argument that they would then be helped to achieve at least average competence, while Mozart would do relatively well anyway, for instance as a reasonably well-paid restaurant musician?!

It was argued that indirect taxes on and subsidies to labor, for the purpose of influencing the relative demand for various types of employees, could also be a useful method to influence the distribution of factor income. Here again, losses in economic efficiency may occur due to a less effective allocation of resources, if such taxes and subsidies are used only for the purpose of influencing the distribution of factor income. However, such taxes and subsidies, by being "market conformed" policies, will most likely be connected with smaller losses in economic efficiency than direct wage regulations "against" the market forces, as such methods tend to create unemployment, which is usually a much heavier loss in terms of economic efficiency than just inefficient employment.

It was also argued that redistributions of conventional capital - financial and physical assets - will have very little effect on the overall distribution of factor income in a highly developed country, such as Sweden, where labor income constitutes some 85-90 percent of the national income. However, such redistributions may nevertheless be of importance from the point of view of the distribution of economic power and welfare, as the distribution of wealth per se is important in these matters, even if capital income is not a large fraction of the total national income. Moreover, capital income is quite significant for the top part of the upper percentile of the vertical income distribution, and some people may attach great importance to this part of the distribution.

Also the possibilities for influencing the link between factor income and disposable money income, by tax-transfer system, seem rather promising, though a country like Sweden might have reached the upper limits here. It was pointed out that high marginal tax rates tend to reduce the freedom of choice for the individual more than do reductions in the differences in wage rates, as the former method not only reduces the returns to the individual of "climbing" to higher paid jobs, but also reduces the returns on longer working time (less leisure).

The link between disposable money income and disposable real income may be influenced mainly by indirect taxes on and subsidies to goods and services, and by price regulations. Indirect taxes on and subsidies to commodities and services can certainly be used as efficient methods to influence real disposable income in countries where various specific commodities play a crucial part for some population groups. This holds mainly for less developed countries, where a few food items, such as rice, play decisive role for the living standard of the poorest segments of the population. Subsidization of such goods, implying that both consumption and production (or imports) are stimulated, can then be an important part of redistribution policy. A problem with such indirect taxes and subsidies is, of course, that the allocation of resources will deviate from the principle of "consumer sovereignty".

Price regulations are much less effective, and may be quite counterproductive, as incentives to producers will then usually fall, with subsequent scarcities. Mistakes in redistribution policy via price regulations which have in fact kept down consumption of the population as a whole, and possibly also of the poor, have occurred in many countries. In rich countries, where the difference in the composition of consumption among income classes is smaller, indirect taxes and subsidies are less useful in redistribution policy.

Policies to affect the link between real disposable income and welfare can also be influenced in a number of ways. Public consumption is one important variable that can have substantial redistributional effects, even if, so far, it has perhaps not been much used for this purpose. The redistributional effects of public consumption can be accentuated if the prices for such consumption - for instance higher education and medical care - are differentiated according to income, though some unfavorable incentive effects may of course occur in such cases as well. However, they will probably be small in the case of fees for medical care, as such services are hardly planned in advance by individuals.

Another important measure to influence the link between real disposable income and welfare is, as already indicated, methods to redistribute conventional capital, as such capital can considerably contribute to the security, liquidity, economic power, and freedom of the individual. Moreover, various types of environmental improvements could also be of considerable importance in the equilization of individual welfare - for instance, by a more equitable distribution of good working conditions, man-made and natural environment, recreation facilities and other factors which are nowadays often included in a wide definition of "quality of life" indicators, or social indicators.

Measurements of efficiency

How should the success of the various attempts to redistribute income and welfare be evaluated? A rather primitive, strongly partial, index of the efficiency of redistribution policy would be to compare the achieved restributions with the size of the measures undertaken. One conceivable expression of the size of these measures is the total gross flow of incomes that is generated to achieve the "intended net redistribution". For instance, suppose that Skr. 100 million's worth of public transfer payments is paid out for the purpose of raising the incomes of a certain group of people. We would then perhaps be interested in how large a fraction of this public spending that actually winds up with the "target group", and how much is instead either administrative costs or incomes that accrue to other groups. It would be possible, in principle, to study a number of public expenditure programs from this point of view.

Before systematic studies of this type have been carried out, only some preliminary remarks are possible. One difficulty with studies of this type is that many social security programs are to a large extent designed to achieve redistribution over time for given individuals, rather than redistributions among individuals. For instance, public pension systems often distribute pensions in approximately the same proportions among people as the distribution of the pensions fees. However, this can hardly be criticized as a lack of efficiency in the system, as it is not (mainly) intended to achieve redistribution of life-incomes between different individuals.

Systems of children allowances, another major item among transfer payments, are usually designed to redistribute incomes from people without (small) children to people with (small) children - regardless of the position of these people in the vertical income distribution. The very purpose of these transfers is "horizontal" rather than "vertical". Consequently, the redistributions among income groups are not large - if it cannot be shown that the transfers (on the margin) are financed by highly progressive taxes.

Rather similar things can be said about the subsidization of the interest costs of houses; the transfers accrue to people quite independently of their income. And the "tax subsidies" to those living in owner-occupied houses - by imputing a very low income for taxation purposes (in Sweden amounting to 2 percent of "taxation value" of the house) and by allowing deduction of interest payments - means that high-income groups obtain greater favors in absolute terms (and sometimes also relative to disposable income) than low-income groups, due to the progressiveness of the tax system. Here a redistribution in favor of middle- and/or high-income groups is, in fact, often achieved by the tax-transfer system.

Another type of housing subsidy - direct subsidization of rents, particularly for families with children - has no doubt often redistributional effects in favor of low- och middle-income groups, as these subsidies are reduced by higher incomes (in Sweden up to Skr. 65,000, when they disappear). In fact, this is probably, together with the progressive income tax, the most important part of the tax-transfer mechanism in Sweden from the point of view of income distribution policy. However, a very small *fraction* of these transfer payments accrue to *very* low-income groups.

In a similar way, other types of transfers could be discussed. If we went through all transfer programs, we would presumably find that *a very large fraction* of the total transfer payments - of some 18 percent of GNP in Sweden - has only minor redistributional effects on life-time income of various income groups. There are some specific social programs that help the *very* low-income groups, mainly discretionary social welfare payments, which, however, usually only make up a rather small fraction of all social transfers - in Sweden some 1-2 percent.

We have seen that the combination of progressive taxation and income-dependent housing subsidies in Sweden, from the early seventies, implies a rather large redistributional effect *within* the middle-income bracket, in the sense that differences in disposable income among people in this group - for instance people with pre-tax incomes of, say, 20-60,000 kronor - are very small relative to the differences in gross incomes, in particular for families with children.

To summarize, it is very difficult to judge the efficiency of the tax-transfer payments from the point of view of income redistribution policy, partly because the aims of the various programs are so different. It could be argued, perhaps, that *if* a very high priority is put on helping the *very* low-income groups, the efficiency of the tax-transfer system is rather low, in that only a very small fraction of total "gross" transfers winds up among these groups. In this sense, there is a large "spillover" to middle- and high-income groups of the total transfers. This is perhaps an important point, because the political obstacles to raising taxes further means that it is difficult to extend new systems of transfer payments to the very low-income groups.

Rather similar things can be said about the price control systems for housing and for agricultural products. Rent control is a *highly inefficient* method of achieving income transfers to low-income groups, as the income support is here tied to the *apartment* rather than to the individual living there. Hence, high- and middle-income people, living in rent-controlled apartments in old or semi-old houses, are supported by rent control, whereas low-income groups who live in new houses have to pay very high rents. There may even be a *systematic* tendency for such a system to favor middle- and high-income groups relative to low-income groups, as the way to get hold of low-rent apartments in a rent-controlled housing market, with a permanent shortage of such apartments, is through personal contacts with landlords and employers, public authorities, and "influential people" in general. Moreover, as was said earlier, housing is not a typical "low-income commodity", which means that neither general housing subsidies, nor rent control, are particularly favorable for low-income groups.

The system of agricultural price support has also to be regarded as a rather inefficient method of income redistribution, as it implies, to a large extent, that incomes are taken from low-income consumers and given to prosperous farmers. However, when world market prices for agricultural products increase to levels *above* domestic prices, and agricultural price support shifts over to subsidies to consumers rather than to farmers, then some equalization effects on the vertical income distribution certainly emerge.

This discussion of the "efficiency" of income distribution policy has relied on a comparison of, on the one hand, the *gross flows* of transfers, and on the other hand, the *net desired* redistributions. Another type of measure of efficiency would be to compare the net desired effects with the macroeconomic costs, e.g. the losses in GNP, or other efficiency measures, caused by redistribution policies. Here a quantification is as difficult as it is important. In this paper, I have only been able to suggest some possible *channels* for such costs by way of (1) distortions of the choice between consumption and leisure, (2) distortion in the allocation of labor, (3) changes in incentives to invest in human capital, (4) reduction in incentives to take risks and invest; and (5) difficulties in the establishment and survival of family firms, etc.

Another complicated aspect of macroeconomic efficiency and allocation of resources is, of course, the interrelations between distribution aspects and the *level of economic development*. It would seem that there is a clear positive "trendwise" relation between on the one hand equality, and on the other hand per capita income *among developed countries* - both in cross-section and time-series data.[1] [Paukert, 1973; Jain and Tieman, 1973]. It is conceivable that this reflects the fact that a high per capita income in a country presupposes a rather high level of education for the population as a whole, and that mass education tends to create a large middle class. This interpretation is consistent with the facts that (1) the income share of middle-income groups is *considerably* larger in developed than in less developed countries, (2) the share of high-income groups is considerably smaller, while (3) the share of low-income groups is only *slightly* larger.[2]

[1] Among the poorest countries, there seems to be the inverse relation, thus creating a U-shaped curve to depict the relation between equality of income and level of development.

[2] The less the factor price of human capital goes down as a result of increased supply of this factor, the more likely it is that the *share* of total factor income earned by human capital will rise. In the context of a two-factor production model, an increase in human capital will result in an increased income share for this factor if the elasticity of substitution between the factors is greater than unity, which is empirically rather likely according to contemporary studies in various highly developed countries.

It has also been established empirically that inequality in earnings between different education groups - primary, secondary and higher education - falls with higher per capita income (in cross sections of countries). Whereas people with higher education seem to have 6.5 as high (life) incomes than people with primary education in poor countries, the corresponding multiple is 2.5 in rich countries [Psacharopoulos, 1973, Chap. 1].

The interrelation between equality and *the rate of growth* is more complicated. A rapid rate of growth is usually connected with a rapid rate of structural change in the economy. This tends to increase the income of those who move from low-income sectors to high-income sectors (for instance from agriculture to manufacturing), which has an equalizing effect. However, rapid structural changes may also be connected with strong income and capital gains for groups with the ability (and luck) to seize the opportunities, at the same time as those who do not "adjust" may lose income or even be thrown into unemploy[illegible] - which tends to increase inequalities.

It was pointed out in the beginning of the paper that distribution policy refers not only to individual welfare but also to *economic power*. What has happened to economic power, and how it can be further influenced, is at least as difficult to pinpoint as is analysis of the distribution of individual welfare. However, I think it makes sense to say that economic power during this century has been redistributed to a rather considerable extent from holders of conventional wealth - physical and financial assets - to owners of human capital, as well as to politicians, administrators in the public sector, labor union leaders and individual employees. Wealth holders have lost powers largely to the management of firms, which in turn have lost powers to other groups in society.

For instance, politicians and public administrators have, by way of new laws and regulations, and a more and more interventionist economic policy, increased their direct or indirect control of decision-making in firms. At the same time, labor union leaders have, in many countries, obtained powers to bargain about more things than earlier, for instance working conditions and also certain types of decisions on inputs and outputs in firms, particularly with respect to the hiring and firing of labor. Individual employees, finally, have gained freedom of choice and bargaining power vis-à-vis their bosses due to the rather high employment levels in the post-World War II period. Thus, it seems to be safe to say that considerable redistribution of economic power has occurred in the Western societies during the last decades.

It may be argued, of course, to what extent these developments represent a more or less equal distribution of economic power than earlier. However, general agreement can probably be reached that the redistributions in favor of individual employees represent such an equalization. The same can probably be agreed upon in the case of increased power of labor union leaders - up to a point which perhaps tends to be reached in some countries, where labor union leaders are becoming the most dominant pressure group in society even outside the field of labor market issues. How to characterize the increased concentration of powers to politicians and centrally placed public administrators is, of course, a rather controversial issue. If such concentration goes too far, we may of course wind up in a rather centralistic economic system, with a much stronger concentration of powers than if more economic decisions had been left to managers and shareholders in individual enterprises - though these concentrated powers may perhaps be checked by voters via the political process.

The complexity of the problem of equality

Thus, redistribution policy, like most other types of policies, may involve conflicts of goals: (1) equality of opportunity and income may clash with the rights of parents to raise children - in fact, the family institution is perhaps, in the advanced countries, the greatest obstacle of all to equality; (2) equality of income may occasionally come into conflict with economic growth, though there probably is a long-run "harmony" between equality and the level of economic development; (3) equality of income may also come into conflict with (static allocative) economic efficiency, with (4) the freedom of the individual to choose between consumption and leisure, as well as to choose jobs according to personal preferences and ability; and (5) ambitions to reduce private wealth and private capital income may come into conflict with investment incentives, with a vigorous entry of new firms (such as family enterprises) - and possibly also with the desire to have a decentralized economic system and hence a pluralistic society.

It is important to realize that wage and earning differentials have other important social and economic functions than just to distribute income in society: to provide information and incentives for economic efficiency, initiatives and creativity; to allow individual freedom with respect to occupation, work and consumption; to permit social mobility and individual advancement; and to make possible a decentralized and pluralistic society in general.

However, it is also important to emphasize that some policy instruments may, as already suggested, be *favorable* from the point of view of *both* allocation and distribution - such as full employment policies; the fight against monopolies of firms and specific employee groups; policies to increase the mobility of factors by better information and more perfectly functioning markets in general; appropriately distributed investment in human capital (up to a point); and possibly also more efficient "screening systems" according to ability, if these can be designed not to discriminate (much) with respect to family background.

Moreover - and this is an important point - *increased economic equality might increase the political, social, and economic stability of a society* - for instance by reducing the severity of conflicts in the labor market. And this increased stability may, by itself, be regarded as *an improvement in the efficiency of the economy in a wide sense*. Such an improvement in stability may sometimes (often?) more than compensate for economic losses due to "distortions" of individual (micro-economic) incentives and due to misallocations. Moreover, at the same time as freedom of the individual - to choose between jobs and between consumption and a leisurely life - requires wage differentials, large wage differentials will restrict the freedom of choice, for instance concerning consumption decisions, for those with low incomes, as compared to the freedom of choice for high-income groups. Thus, very complex trade-offs, and thereby implied "compromises", are characteristic for income distribution policy.

In spite of all these complexities and conflicts of goals of redistribution policies, I think that the general lesson from the Swedish experiences, at least so far, is that *income redistribution can go quite far without serious losses in terms of economic efficiency and freedom* of choice for most individuals, and in fact with considerable widening of the freedom of choice for previously underprivileged groups in society. For instance, a rather slow but continuous fall in the profit share, to some 10-15 percent of national income, seems to have been reconcilable with a fairly dynamic economy. And, in particular, a rather substantial narrowing of the differentials in disposable incomes, and per capita consumption of households, by way of tax-transfer systems, have been possible without apparent drastic losses in incentives for work and efficient allocation of labor.

Reservations have to be made for complications in wage formation because of the highly progressive tax system. It is also possible, of course, that incentive effects will be larger in a long-run than in a short-run perspective; the very high progressiveness of the tax-transfer system in Sweden is a new phenomenon, from the late sixties and early seventies - particularly concerning the large "middle-income" groups (with factor incomes ranging from, say, Skr. 25,000 to 60,000).

The exposition in the paper has (hopefully) illustrated the point that all conceivable methods of redistribution policy are characterized by some uncertainty, inefficiency, and various other problems - in the sense that either the effects on the distribution of income and welfare are limited or that the methods have various "side effects" (or both). It is also likely that the different factors that directly or indirectly influence the distribution of welfare are highly interdependent.

All these circumstances make a case for pursuing several redistribution policy programs simultaneously. First of all, the weaknesses of each separate program constitute an argument for combining the effects of many programs in order to reach a worthwhile total effect. Secondly, as there is probably a rising marginal disutility connected with each individual instrument, there is good reason to use all (most) available instruments - up to the point where the marginal disutility per every "unit" of improvement in equality is the same for each instrument. Thirdly, the uncertainty about the effects of each program is an additional argument for using a great number of programs concurrently - in the same way as it makes sense for asset holders to diversify their portfolios to reduce risk.[1] Fourthly, if the correlations between the rank of individuals in different types of distributions - income, prestige, clean working conditions, working time, health, etc. - are broken, it may not be quite as bad as earlier to be at the bottom of some of these distributions; individual "success" in some dimension of the distribution of welfare, economic power and status perhaps will make the disadvantages of "failures" in the other dimensions less severe.

Finally, the possibility of interdependences between the effects of the various programs makes a case for utilizing possible mutual "reinforcement effects". For instance, improved schooling may raise income, and higher income may increase both the ability and willingness to invest more in education; better nutrition and health may increase productivity, which may raise income, which may, in turn, improve the possibility of improving nutrition, health, education results, etc. Thus, by pushing policies in many different fields simultaneously, it may be possible to exploit what Gunnar Myrdal [Myrdal, 1974] has often called "circular causation", resulting in "cumulative effects" and "movement upwards of entire social systems" for underprivileged groups.

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[1] The general argument for diversifying the "portfolio" of policy measures, in the case of uncertainty about the effects of the policy measures, has been developed in [Brainard, 1967].

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TABLE A:1

Percent of people who have experienced unemployment some time during 1966.
Breakdown on various socioeconomic groups

Social and occupational group	Open unemployment (1)	Partial unemployment (2)	Latent job seekers (3)	All "unemployed" (1+2+3)
Head of enterprise, liberal professions	0.0	0.7	0.0	0.7
Publicly employed, higher posts	7.7	0.0	0.0	7.7
Housewives	2.0	1.0	5.1	8.1
University students	2.7	0.0	2.7	5.4
Pensioners	0.0	0.0	0.0	0.0
Social group I, all	*2.8*	*0.4*	*1.6*	*4.7*
Farmers	4.4	0.0	0.9	5.3
Small tradesmen	7.4	1.3	0.8	9.5
Supervisory personnel	2.9	0.0	0.0	2.9
Technicians and clerical staff	4.0	0.4	0.4	4.7
Publicly employed, lower posts	4.1	0.8	0.6	5.5
Housewives	2.2	0.8	6.9	9.9
Secondary school upper form students & equivalent	2.9	1.2	1.8	5.8
Pensioners	0.0	0.0	0.0	0.0
Social group II, all	*3.6*	*0.6*	*1.8*	*6.0*
Smallfarmers, forestry & farm workers	12.9	2.2	0.7	15.9
Workers in the private sector	12.3	0.9	0.3	13.6
Assistant personnel in the private sector	8.4	1.9	1.6	11.9
Publicly employed workers & assistants	9.9	1.6	2.0	13.5
Disabled persons	2.4	1.4	0.0	3.8
Housewives	3.8	2.1	7.9	13.8
Other student categories	3.9	0.0	3.5	7.4
Pensioners	2.1	0.8	0.3	3.2
Social group III, all	*8.1*	*1.3*	*2.2*	*11.6*
All	6.1	1.0	2.0	9.1

Source: [Sjöberg-Lundqvist, 1971]

TABLE A:2

Employees receiving "extremely low wages"* in various branches

Branch	No. of employees in branch	Percentage of employees in branch receiving extremely low wages (%)
Housework	26,000	96
Hygiene & misc. personal services, amusements	68,000	46
Hotel & restaurant trade	52,000	44
Agriculture, forestry	122,000	29
Mining & quarrying indust.	6,000	..
Manufacture of non-metallic mineral products (except products of petroleum and coal)	42,000	26
Other manufacturing indust.	28,000	26
Retail trade (excl. motor fuel)	224,000	26
Food & beverages indust.	122,000	24
Commissioned work	59,000	20
Other public services	162,000	19
Sick care	203,000	17
Postal & telecommunications	95,000	12
Other branches of trade	106,000	12
Textile, wearing apparel & leather indust.	96,000	11
Public administration, education	348,000	10
Transport, retail trade in motor fuel	157,000	10
Wholesale trade (excl. raw materials & semi manufactures)	103,000	9
Wood, pulp & paper indust.	114,000	8
Construction	273,000	7
Financial enterprises, insurance companies	77,000	6
Iron, steel, machine, electro-transport indust.	502,000	6
Graphic, rubber & chemical indust.	119,000	5
Total	3,104,000	

* Less than 7 Skr./hour

Source: [Sundbom, 1971]

TABLE A:3

Wage rates related to education, branch, and sex.
Persons working full-time the whole year, 1966.
(Regression Analysis)

	Annual wage as a percentage of the average annual wage	
	MEN	WOMEN
Education:		
Elementary school only	85.5	87.0
Elementary school + occupational training	98.3	97.6
Lower secondary school certificate or equivalent	107.6	103.7
Lower secondary school certificate + occupational training	121.8	115.3
Matriculation exam.	133.8	138.0
Matriculation exam. + occupational training	153.6	160.3
Academic degree	204.2	207.7
Branch:		
Agriculture, forestry, hunting, fishing	83.7	80.0
Textile and wood industries etc.	96.4	90.3
Metal, mining and graphic industries	99.2	103.2
Other refining industries	98.8	97.6
Construction	113.6	124.7
Finance companies, wholesale trade	108.1	96.7
Retail trade	94.3	98.5
Communications etc.	98.2	116.2
Public administration etc.	94.9	106.2
Private services	107.8	89.9

Source: [Holmberg, 1970]

TABLE A:4

Income relations between different occupational groups 1967 and 1971 respectively. Percent.

	Annual Gross Income at 45 Years of Age		Accumulated Life Income, Gross		Accumulated Life Income, Net		Discounted Life Income, Net (5 % interest)	
	1967	1971	1967	1971	1967	1971	1967	1971
B.Sc. in Economics - Conductor with the Swedish State Railways	284	233	185	174	114	86	68	47
B.Sc. in Economics - Metal Worker	252	242	171	156	106	78	62	43
B.Sc. in Economics - Bank Clerk	121	95	81	71	50	40	29	28
B.Sc. in Economics - Secondary School Teacher	71	91	59	73	39	43	34	36
B.Sc. in Economics - Social Counselor	178	149	123	116	78	64	63	51
Secondary School Teacher - Metal Worker	106	79	71	48	49	25	20	5
Secondary School Teacher - Intermediate School Teacher	54	36	39	30	27	17	14	11
Secondary School Teacher - Social Counselor	63	30	41	25	29	15	21	11
Social Counselor - Metal Worker	27	38	21	19	16	9	-1	-5
Dentist in the National Dental Service - Social Counselor	116	86	82	71	54	41	48	32
Dentist in the National Dental Service - Metal Worker	173	156	121	103	78	53	46	26

Source: [SACO, 1973]

TABLE A:5 Media and extra equipment in various social and occupational groups 1968

	Media equipment						Extra equipment			
	No TV	No newspaper	No teleph. in home	Bookshelves less than 2 m	2-5 m	More than 5 m	Washing & dish-washing machine dp.freeze	2 of these	1 of these	none of these
Population 15-75 yrs.	11	7	9	36	36	28	5	42	39	14
Entrepreneurs, managers, liberal professions	4	0	2	2	17	81	31	37	26	7
Publicly employ., higher posts	0	2	1	4	12	84	19	37	34	10
Housewives	7	1	0	6	12	82	29	28	37	6
Persons studying at univ.	22	7	9	4	21	75	4	21	54	22
Pensioners without gainful employment	15	0	0	6	17	77	8	26	35	30
Social Group I, all	*3*	*2*	*2*	*4*	*10*	*83*	*21*	*38*	*35*	*18*
Farmers & helping wives	11	4	3	45	41	13	4	73	16	7
Small tradesmen & help. wives	7	4	4	27	43	30	9	49	30	12
Supervisory personnel	6	6	2	28	41	32	3	45	40	12
Technicians & clerical staff	10	6	8	20	41	38	4	41	44	12
Publicly employ., lower posts	9	7	7	16	37	46	6	41	41	12
Housewives	5	2	2	23	42	35	6	51	35	7
Sec. school, upper form students & equiv.	7	5	5	7	41	53	17	48	27	8
Pensioners without gainful employment	24	9	6	39	36	25	1	21	54	24
Social Group II, all	*9*	*5*	*5*	*24*	*40*	*36*	*6*	*46*	*37*	*11*
Small farmers, fishermen, forestry workers	22	8	10	64	28	8	2	58	25	14
Workers in private sector	10	8	13	46	40	14	1	43	41	15
Ass. personnel in priv. sect.	7	9	9	41	35	23	1	40	45	[illegible]
Pub. employ. workers & ass.	9	10	8	37	41	21	2	41	44	12
Unemployed persons	15	14	19	53	34	13	1	39	34	25
Disabled persons	10	22	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]
Housewives	7	6	11	[illegible]	[illegible]	11	0	48	[illegible]	13
Other student categories	6	4	6	22	43	35	[illegible]	52	32	10
Pensioners without gainful emp.	27	10	15	63	27	10	0	21	49	30
Social group III, all	*12*	*9*	*8*	*47*	*37*	*16*	*1*	*42*	*41*	[illegible]

Source: Johansson L., Den vuxna befolkningens bostadsförhållanden 1968, Stockholm 1971.

TABLE A:6 Leisure activities

	Fishes often	Hunts often	Often works in garden	Often goes to cinema	Often goes to theatre	Often goes to rest.	Often goes dancing	Often goes shopping	Often makes excur. in car	Often attends circles/ courses	Often plays musical instr.	Often takes part in athelet.	Often spends time on hobby
Population 15-75 yrs.	10	3	25	6	6	3	8	10	28	7	5	13	35
Entrepreneurs, managers	9	2	45	6	25	16	6	5	26	13	8	25	34
Pub. employ., higher posts	8	2	33	7	18	6	2	9	23	12	8	30	31
Housewives	4	0	39	4	19	2	3	12	32	19	1	20	56
Pers. studying at univ.	7	1	9	43	31	15	20	12	20	5	24	32	24
Pensioners	11	6	48	3	28	6	0	13	32	9	3	8	39
Social Group I, all	*8*	*2*	*36*	*11*	*23*	*10*	*6*	*9*	*26*	*13*	*8*	*25*	*37*
Farmers & helping wives	5	10	25	1	1	0	2	1	13	12	2	6	27
Small tradesmen & help. wives	17	5	30	2	8	4	2	4	24	8	5	12	22
Supervisory personnel	17	3	35	5	6	3	6	5	38	13	5	13	20
Technicians & clerical staff	11	3	21	9	8	7	12	11	36	15	6	19	37
Pub. employ., lower posts	7	2	26	3	11	3	5	11	35	17	8	16	41
Housewives	5	0	39	1	3	0	2	11	39	9	3	12	60
Upper sec.sch.studs.& equiv.	11	3	5	18	12	6	29	16	28	10	25	34	34
Pensioners	7	0	27	0	2	1	0	12	15	3	2	2	37
Social Group II, all	*10*	*3*	*28*	*5*	*7*	*3*	*7*	*9*	*31*	*11*	*7*	*15*	*37*
Small farmers, forestry & farm workers	13	10	24	2	0	0	3	3	13	2	3	7	18
Workers in private sector	16	4	23	6	3	3	11	8	35	5	3	14	24
Assistant personnel in priv. sector	5	0	17	6	4	1	11	11	33	5	3	8	41
Pub. emp. workers & assist.	11	2	25	4	4	3	9	12	32	6	4	12	43
Unemployed persons	16	3	17	9	1	2	18	13	25	2	2	11	16
Disabled persons	8	3	12	7	3	3	4	13	8	7	4	5	31
Housewives	5	0	32	0	0	0	1	7	28	3	4	6	58
Other persons engaged in studies	15	2	5	25	9	5	29	22	19	8	15	29	33
Pensioners	4	1	22	0	1	0	1	8	6	4	3	2	29
Social Group III, all	*11*	*3*	*23*	*6*	*3*	*2*	*9*	*10*	*27*	*5*	*4*	*11*	*34*

(contd.)

TABLE A:6 (contd.): Leisure activities

	Often reads books	Often reads weeklies	Much TBS activity[1]	Little or no TBS activity[1]	Much social life	Isolated	Memb. of pol. organization	Memb. of trade un.org.	Memb. of athletic organ.	Memb. of temperance organ.	Memb. of religious organ.	Memb. of other organ.
Population 15-75 years	31	32	4	48	16	9	13	45	16	4	7	22
Entrepreneurs, managers	60	15			22	8	24	44	29	3	6	56
Publicly emp., higher posts	69	8			16	3	17	83	27	5	8	56
Housewives	60	25			22	7	16	9	8	0	3	38
Persons studying at university	78	14			9	9	9	29	21	1	9	48
Pensioners	73	31			22	14	23	22	11	5	3	66
Social Group I, all	***68***	***16***	***13***	***10***	***19***	***7***	***18***	***43***	***21***	***8***	***8***	***52***
Farmers & helping wives	14	17			20	4	49	56	17	7	10	31
Small tradesmen & help. wives	29	25			13	8	17	30	21	9	6	32
Supervisory personnel	38	19			19	11	11	76	25	8	4	19
Technicians & clerical staff	43	26			18	6	11	57	21	4	6	27
Publicly emp., lower posts	47	24			19	5	16	78	24	4	11	27
Housewives	25	33			21	7	10	3	7	2	6	21
Upper sec.sch.studs.& equiv.	50	36			12	8	8	9	34	2	11	16
Pensioners	35	39			12	17	15	12	3	6	11	25
Social Group II, all	***36***	***27***	***6***	***37***	***17***	***7***	***18***	***43***	***19***	***5***	***8***	***25***
Small farmers, forestry & farm workers	16	34			16	8	19	47	14	14	4	10
Workers in private sector	22	33			15	9	13	80	22	5	5	16
Assistant pers. in priv. sect.	26	45			21	5	8	45	7	4	4	12
Publicly empl. workers & assist.	26	34			17	19	9	68	16	4	7	17
Unemployed persons	25	33			8	11	6	39	14	4	4	12
Disabled persons	22	33			5	54	4	6	0	0	7	10
Housewives	20	39			19	7	6	3	5	3	8	14
Other persons engaged in studies	43	55			14	8	7	5	28	5	5	16
Pensioners	23	35			12	17	9	19	2	4	12	23
Social Group III, all	***24***	***37***	***8***	***60***	***16***	***10***	***13***	***46***	***14***	***4***	***7***	***16***

Source: [Lundahl, 1971]

1) An index referring to visits to theatre, concerts, museums, exhibitions, reading of books and study circles/courses.

TABLE A:7

Average periods of education. Percentage of year-groups.
Conducting studies. Classification on father's social group.

Father's social group	15-19 years of age aver. period of education	% stud	20-24 years of age aver. period of education	% stud	25-29 years of age aver. period of education	% stud	30-34 years of age aver. period of education	% stud	35-54 years of age aver. period of education	55-75 years of age aver. period of education
I	8.9	93.0	11.9	74.8	14.4	35.4	13.4	11.7	13.0	12.2
II	8.4	75.9	10.3	29.8	10.0	13.2	9.5	4.9	8.5	7.4
III	8.4	71.7	9.3	19.1	9.0	9.8	8.8	5.0	7.4	6.6

Source: [Johansson, L., 1971]

TABLE A:8

Distribution of income before tax in Sweden.
Population aged 20 years or more.

Percentage	Males		Males and females		
groups	1958	1971	1951	1958	1971
0-10	0.9	1.0	0.2	0.2	0.4
10-20	3.1	2.8	0.2	0.2	1.0
20-30	5.2	4.6	0.4	0.5	2.6
30-40	7.2	7.0	2.7	3.3	4.7
40-50	8.8	8.9	5.7	5.8	6.6
50-60	10.0	10.3	9.3	9.3	9.6
60-70	11.1	11.6	12.6	12.6	12.5
70-80	12.7	13.0	15.6	15.7	15.0
80-90	14.8	15.3	19.1	19.2	18.1
90-100	26.4	25.6	34.2	33.1	29.5
95-100	17.3	16.0	26.6	21.1	18.3
97.5-100	11.0	10.1	14.6	13.9	11.5
99-100	6.4	5.4	8.5	7.9	6.2

Source: Central Bureau of Statistics, Beräkningar av medelvärden, deciler, samt de bägge inkomstspridningsmåtten maximala utjämningskoefficienten och koncentrationskoefficienten för perioden 1951-1971, Stockholm 1973.

Table A:9

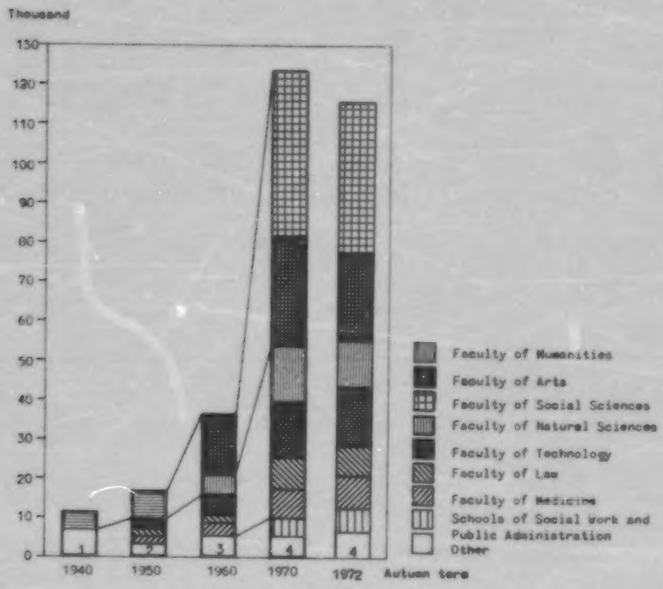
Percentage of distributed factor income, disposable income and disposable per capita income of households 1972, according to decile groups of households.

Decile groups of households	Distributed factor income of households	Disposable income of households	Disposable per capita income of households
1	-0.2	2.2	3.6
2	0.3	4.4	5.7
3	1.9	5.9	6.7
4	5.3	7.2	7.5
5	8.1	8.5	8.4
6	10.2	10.0	9.5
7	12.3	11.5	10.9
8	14.7	13.3	12.6
9	18.4	15.7	14.9
10	28.8	21.3	20.2
"Maximal equalization coefficient":	34.4	21.9	18.6

Source: Central Bureau of Statistics; Swedish Survey on relative income differences 1972.

CHART A:1

Enrollment by faculty at institutions of higher education

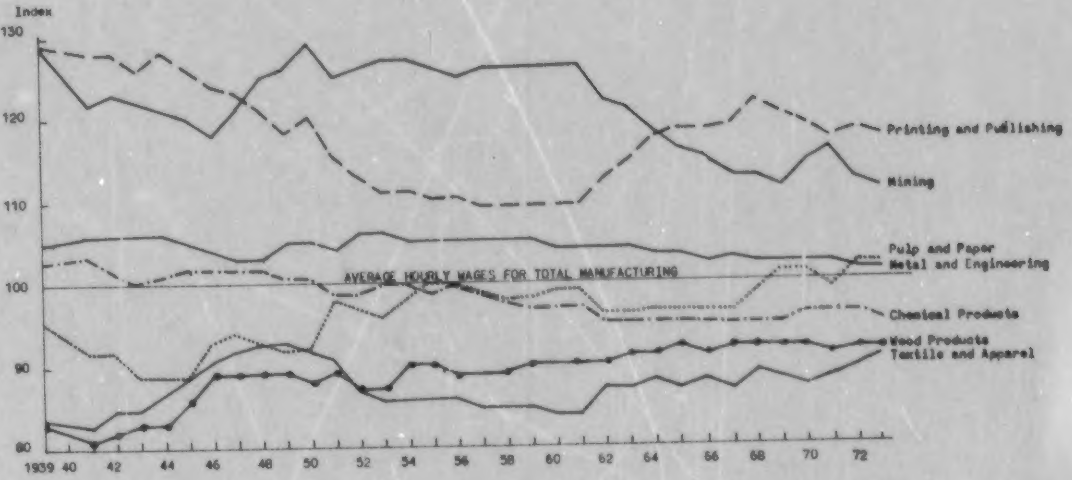


NOTES:
1. Including faculties of pharmacy, law, medicine, theology, odontology, and technology plus schools of physical education, economics, agriculture, forestry and veterinary medicine.
2. Including faculties of pharmacy, odontology and theology and schools as in note 1.
3. See note 2; in addition, schools of social work and public administration are included.
4. See note 3; schools of economics are included in the faculty of social science.

SOURCE: U:68, SOU 1973:2 and Central Bureau of Statistics: Statistical Abstract of Sweden 1973.

CHART A:2

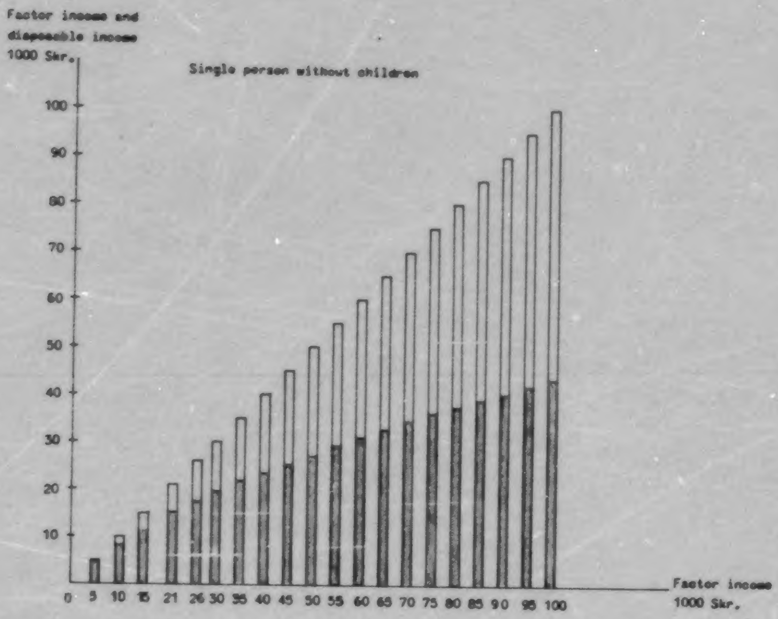
Relative wage levels in different industries during the period 1939 - 1973
(Other industries are spread between those included in the chart - in a
rather nondramatic way.)



Source: [Edgren-Faxén-Odhner, 1973] plus data from Central Bureau of Statistics

CHART A:3 A

Factor income and disposable income for different groups



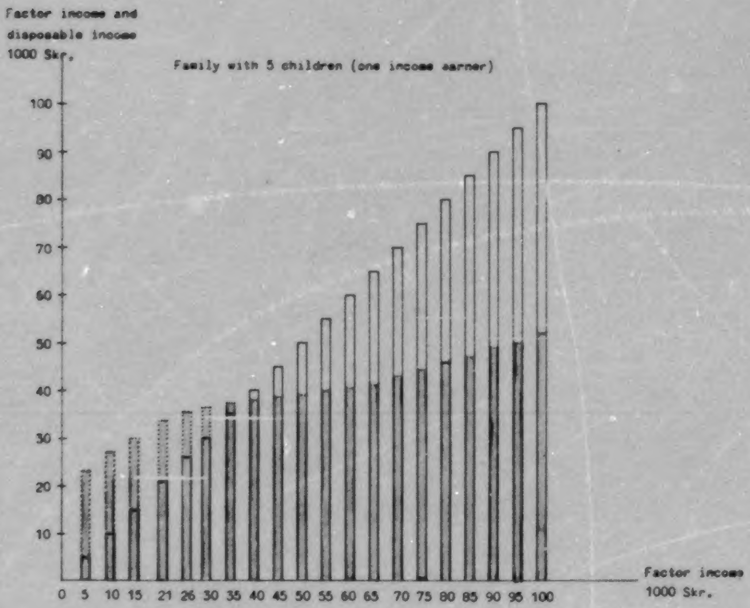
Shaded bars indicate disposable income, "total" bars indicate factor income.

A municipal tax rate of 24 percent (which corresponds to the national average 1973) has been assumed. Child and housing allowances have been treated as negative direct taxes. The general insurance fees and housing allowances are according to the schedule applying to Greater Stockholm. Cases with more than one income earner in a family with children have not been considered.

Source: Basic statistics from [Matthiessen, 1973]

CHART A:3 B

Factor income and disposable income for different groups



Shaded (and dotted) bars indicate disposable income, "total" bars indicate factor income.

A municipal tax rate of 24 percent (which corresponds to the national average 1973) has been assumed. Child and housing allowances have been treated as negative direct taxes. The general insurance fees and housing allowances are according to the schedule applying to Greater Stockholm. Cases with more than one income earner in a family with children have not been considered.

Source: Basic statistics from [Matthiessen, 1973]

A Comment on Lindbeck

by

Ragnar Bentzel

1. Income - consumption - welfare

The plan of the second part of Assar Lindbeck's paper is based on the sequence "factor income - disposable money income - disposable real income - welfare". His point of departure is the statement that the distribution of welfare is the target variable of distribution policy and he shows how the different steps from the distribution of factor incomes to the distribution of welfare can be influenced by various political measures. Apart from his omission to include in the above sequence of what is perhaps the most important constituent -- consumption -- his step-by-step procedure is, I think, of great educational value. It enables us to systematize the different conceivable instruments of distribution policy and, in addition, calls our attention to certain circumstances that are of fundamental importance for distribution problems; above all, the necessity of distinguishing between the distributions of incomes, consumption and welfare. As Lindbeck discusses the implications of this only in passing, I propose to make a few supplementary remarks on it.

Political discussions on distribution have in all periods been concentrated on the question of the distribution of incomes. However, it is scarcely rational to allow this particular distribution to occupy the foreground. Income is only one of several means of obtaining consumption, and in its turn consumption is only one of several means of obtaining welfare. I think that Lindbeck is quite right when he says that the political aims should be connected with the distribution of welfare. The consequence of this approach will, of course, be that the distribution of incomes cannot be an object of political evaluations, at least not if we disregard the question of political power. This conclusion, in all its simplicity, is an essential one. The implications of equalization policy depend largely on whether it is the distribution of income or of welfare that is the object of the equalization.

The strong concentration on the distribution of incomes in the political discussions were, of course, due to the fact that, as Lindbeck says, the distribution of incomes was interpreted as a proxy variable for the distribution of welfare. It is possible that this interpretation was fairly realistic in former times, but how realistic is it today? There is obviously no one-to-one correspondence between an individual's position in the distribution of factor incomes and his position in the distribution of disposable incomes, nor between his position in the distribution of disposable incomes and his position in the distribution of consumption, and even less between his position in the distribution of consumption and his position in the distribution of welfare. The question in that case is whether there is even any approximate correspondence between the distributions of income and welfare.

Lindbeck assumes the existence of individual welfare functions. Among the variables entering these functions he mentions private consumption, public consumption, leisure time, health,etc. That is all right. But why then make a jump directly from disposable real income to welfare? By his omission of consumption in his sequence he misses out some central points in his analysis, such as the implications of the existence of individual differences in the relationships between consumption and welfare.

It is well known that, normally, the distribution of consumption is less unequal than the distribution of disposable incomes. It is a common view that this merely reflects a concentration of the distributions with unchanged relative positions of the individuals. This view is, however, in urgent need of modifications. All empirical evidence in this field shows that the correlation between disposable income and consumption is far from perfect. It may be true that the majority of the population have to live on their incomes, but it needs to be stressed that there are a lot of people who keep a standard of living far above their income level by borrowing or by capital consumption. In this category of dissavers the most important groups are perhaps, students, entrepreneurs with temporary low incomes, many pensioners, many farmers, people with large, but low yielding assets, people with frequent capital gains,etc. Provided we are looking at individuals and not at households there is another category to be added to this list, which consists of all those who benefit from "private transfers" - youngsters living with their parents, old people living with their children and married women working part time and married women not gainfully employed. Together these groups of dissavers and "private transfer beneficiaries" form a considerable part of the total population and the conclusion to be drawn is that the distribution of disposable income seems to be rather bad proxy for the distribution of consumption.

The consumption variable appearing in the individual welfare functions of people belonging to a household cannot, reasonably, be the total household consumption. The relevant variable must be consumption per head (or per consumer unit), eventually modified in some respect because of the existency of economies of scale in "welfare production" within households consisting of two or more individuals. This means, of course. that the appropriate distribution to consider in welfare contexts is the distribution of consumption per head. From the welfare point of view the consumption distribution among households is, in fact, completely irrelevant, unless the universe of households is grouped according to the number of individuals per household and each group is considered separately. There is no sense in mixing all types of households and looking at the consumption distribution among them.

The reflections above indicate that the relationship between the distribution of disposable income among households and the distribution of consumption among individuals is very much diffuse and still more diffuse probably is the relationship between this latter distribution and the distribution of welfare. Among the many factors creating discrepancies between the individual relationships between consumption and welfare the age of the individual should perhaps be mentioned especially. It seems rather natural to believe that the shape of the welfare functions differ among different age groups and especially, that - at a given level of consumption - old people have a lower marginal utility of consumption than the remaining part of the population. The conclusion to be drawn from this is that a levelling of the consumption distribution does not necessarily mean a levelling of the welfare distribution and vice versa. It is, for instance, far from certain that a decrease in the income inequality achieved by a transfer of income from the active part of the population to the pensioners will result in a decrease in the inequality of welfare.

The paragraph above refers to private consumption. But, of course, public consumption also comes into the picture and that means the appearance of another "disturbing factor" in the sequence from income distribution to welfare distribution. Since in most countries the redistributive effects of public consumption are quite important, we have to take them into consideration in our distribution studies. In fact, these effects deserve as much attention as the effects of taxation and other redistributive policies.

Most of what has been said so far is well known and rather trivial. I admit that. My wordy exposition is, however, an expression of my feeling that professional economists as well as politicians need a reminder of these simple things. The power of language over thought is a great and, in my opinion, it is extremely important to keep apart the different concepts, with which we are working. Why do we economists, who really ought to know better, almost always talk about the distribution of income when we really mean the distribution of consumption or the distribution of welfare? And what are we doing when we construct tables over income distributions of collectives including old and young, healthy and sick people working full and part time and families with many children and families without children,etc. Do these tables tell us anything at all about the distribution of economic welfare? If not what else do they tell us?

2. The rationale of income taxation

Lindbeck's very interesting chart 19 serves, in fact, as an excellent illustration of what has been said above. It shows that the average per capita consumption of households belonging to different income classes differs only slightly in spite of the great differences in household incomes, a feature which implies that the income distribution can in no way be regarded as a proxy for the welfare distribution. It shows, in addition something else and something perhaps more important. Realizing that within each income bracket there must be great differences in per capita consumption because of the different sizes of families, we can conclude that the income tax affects the households rather erratically(even if attention is paid to the existence of childrens allowances). Lindbeck's chart indicates that the per capita consumption of the families with children is far below the average per capita consumption and since these families have incomes above the average they are more heavily taxed than the remaining part of the population. We can further conclude that an increase in the progressivity of the income tax will hit the families with children harder than the remaining households - since the families with children have higher average income - and that this probably will result in an increase in the inequality of per capita incomes. The lesson to be drawn from this is - on the assumption that it is, really, the per capita consumption that appears in the individual welfare functions - that the tax should be based not on the household income but on the household income per capita or per consumer unit or still better on the per capita (or per consumer unit) consumption.

3. Equality versus growth

Lindbeck points out that, if the equalization of incomes is carried too far, this may have harmful effects on economic growth through its negative influence on the incentives to work, savings, entrepreneurial initiative, etc. and may even threaten the existence of the capitalist system. He consequently thinks that there will be a trade-off between equality and growth (though he says explicitly that there are political measures which create both growth-promoting and income-equalizing tendencies). I entirely agree with him on this point and, as the conflict of aims between equality and growth is the fundamental distribution problem, I should like to bring out the implications of this conflict a little further.

(a) If there is a "trade-off" between equality and growth, it follows that, with a given aim with regard to the rate of growth the possibilities of making income redistributions are limited; in other words, there is a limit to the scale of income transfers. As regards a distribution policy with a multi-dimensional aim, this means, of course, that the greater the amount of what might be called the "transfer room" that is devoted to the fulfilment of one of the aims, the less "room" there will remain for the fulfilment of other aims. It is therefore, as Lindbeck points out, desirable that the distribution policy should be pursued effectively, so as to make the "spill-over effects" as small as possible. However, I may add that the rational design of the distribution policy requires, first of all, an allocation of priorities to different aims and a concentration of the redistribution measures on the fulfilment of the most important aims.

The distribution aims put forward in the political discussions are usually so vaguely worded that the order of priority is not clear. In the societies of today, in which the shaping of policy is greatly influenced by the often rather selfish actions of a number of different pressure groups, strong tendencies to irrational conduct arise. The aims which appear to be the most important from a comprehensive social point of view are easily neglected and too large a proportion of the "transfer room" is requisitioned for less important aims.

I may mention the following facts as a concrete example of what I have just said. During the 1960's, there was a great activity in Swedish regional policy and in connection with this certain aims of this policy were formulated. These aims included a regional equalisation of incomes, i.e. an equalisation of the average incomes in different regions. This introduced an entirely new aim into the distribution policy, without any serious investigation being made into its consequences. However, a little reflection will indicate that even a very moderate degree of aim fulfilment in this case would require transfers on such a scale that a large part -- perhaps even all -- of the "transfer room" would be required for it. All those who regard the equalisation of the vertical distribution as the principal task of the distribution policy must consider this to be extremely disquieting. Any attempt to reduce the regional differences in income to any great extent would have a devastating effect on the possibilities of vertical re-distribution.

(b) If we believe that there is a negative correlation between income equality and the rate of growth, we must in reason also believe that there is a negative correlation between welfare inequality and the rate of growth. However, these two correlations need not by any means be the same in character. For example, a levelling of welfare under unchanged distribution of income may influence the rate of growth less than a corresponding levelling produced by income transfers. From this there follows a conclusion which Lindbeck never draws but which is implicit in his procedure: that what we must require of a rational distribution policy is that the welfare redistributing measures shall be applied at the points in the sequence "factor income - disposable income - consumption - welfare" at which the disincentive effects will be as small as possible. This conclusion brings to the fore the question of to what extent it is possible, in order to preserve the incentive element, to shift the progressivity of the income tax to other links in the chain leading to the welfare distribution, for example, by introducing a differentiated sales tax, a progressive expenditure tax, a progressive scale of charges for public consumption.

4. Regional distribution

The geographers sometimes describe the economists as people who regard the world as a point with no extension in space. Lindbeck's paper is consistent with this description. He has completely ignored the regional problems, in spite of the fact that, since the beginning of the 1960s, Sweden has pursued a very active, regionally orientated, labour-market policy. There is no doubt whatever that this policy has influenced the distribution of incomes in the country.

Problems are arising in practically all countries, owing to the fact that the demand for and the supply of labour are not identically distributed. These problems are naturally particularly marked in sparsely populated countries, and Sweden is no exception to this rule. In certain areas, particularly in the northern parts of the country, the people have had great difficulties in finding work and a significant amount of permanent unemployment has existed there. In order to remedy this, the authorities have devoted considerable resources to a series of different measures, including removal grants, retraining work, financial assistance to firms which locate factories in regions with high rates of unemployment, establishment of government enterprises, etc. This work has, of course, helped to increase the welfare of the regions which have benefited from it. However, it has similtaneously required large expenditures, which the rest of the people have had to pay. It has thus been a question of a re-distribution of income on a large scale.

In principle, we may regard regional policy as a separate branch of distribution policy. It is therefore a pity that Lindbeck has completely ignored the regional aspects. The introduction of such aspects into the distribution analysis gives rise to a long series of interesting problems. However, it would be straying too far from the subject to go into detail on these problems here. It must suffice to indicate a couple of essential problems in this connection. How much weight are we to attach in the evaluation of welfare to the loss which a person sustains if, in order to find work, he is compelled to move from his home district? How are we to treat the loss of welfare involved in the aging of the population in the depopulated districts? What social services should we endeavour to provide in the sparsely populated areas?

5. The decline of the capital share of national income

Chart 3 in which Lindbeck gives the distribution of the national income between income from labour and income from capital and the comments which he has made on it may easily be misunderstood. Therefore some supplementary comments may be justified. In the first place, I may point out that here Lindbeck calculates the capital incomes net, i.e. after deduction for depreciation. If instead he had calculated them gross - which, in my opinion, would have been more logical - the developments would have appeared far less dramatic. I may also point out that the decline in the capital share is partly an effect of the expansion of the public sector. If we consider only the private sector, this share is 12 per cent in 1972 and 29 per cent in 1950, instead of the 9 and 26 per cent respectively given by Lindbeck. Finally, I may mention that the wages share includes a number of collective employers' contributions which have the character of taxes. Counting these contributions as labour income is logical only under the assumption that it is the employers who carry the burden of them.

In his discussion of the reason for the declining trend in the capital share, Lindbeck mentions increased international competition, the long term reduction of the entrepreneurial risks, etc. Without raising any objections to the contrary, I would mention that there are many indications that the reduction of the capital share reflects a great rejuvenation of the capital stock, produced by an increased frequency of scrapping. This could be expressed in vintage theory terms by saying that there has been a reduction in the difference of efficiency between the most modern and the oldest capital.

6. Public consumption

Lindbeck quotes some examples of the likely distribution effects of public consumption -- schools, medical services and universities. However, I question whether this type of calculation is particularly interesting. What kind of conclusion can we draw, for example, from the statement that the financing of public medical treatment has an income-equalizing effect? Questions such as "What alternative methods of financing are there and how would a change-over to another method influence the distribution of welfare?" are of much greater interest. Even if the existing method of financing has an income-equalising effect, there may nevertheless be reason for changing over to another system which will produce a greater equalising effect. Here I would recall the question to which I have already referred -- whether it is possible to shift the progressivity of the income tax to other links in the sequence from factor incomes to welfare. For example, is it possible to reduce the progressivity of the income tax and to compensate this reduction by an increased progression in the system of charging for public consumption?

In Sweden, it has been repeatedly suggested that the individual should pay more than he does now for medical treatment, education, etc., in order to enable a reduction in direct taxation. Suggestions of this kind have usually been regarded as reactionary and have therefore met with little response from politicians and the public. However, it may be emphasized that this view is very much simplified. The system of charging for public consumption can be re-organised in a great many different ways and with very different effects on the distribution of welfare.

As regards the financing of public consumption, the most urgent problem of all seems to be how the costs of the system of higher education are to be defrayed. This problem is dealt with very briefly by Lindbeck. However, it occupies such a central position in the whole complex of distribution problems that it cannot be neglected at this conference. We must surely ask ourselves what we are doing when we finance from the taxes an educational system which can only benefit a minority of the population. Does this not involve an enormous transfer of income to the citizens who in the society of tomorrow will have the highest positions and consequently also the highest incomes? Does this not mean a transfer of income from the less fortunate to the more fortunate or -- to put it more drastically -- from the stupid to the intelligent? Is such a transfer of income morally defensible?

In defence of the present system of financing, stress is usually laid on the well-known arguments about equal opportunities for study for all citizens, external effects, the income-equalizing tendencies of education, etc. However, all these arguments are hollow. Moreover, even if they were tenable, they could be used in defence of the present system only if there were no alternative systems which would fulfil the democratic ideals equally well or better and lead to the same or a greater frequency of education. The question is therefore whether there are such alternatives or not.

Looking for alternatives to the present system of financing higher education we have to face the following problem: To what extent is it possible for a small country to choose a system radically different from those used in other countries? Since most people with high academic education have good opportunities to practice their professions in foreign countries there is always a latent risk of brain drain. This risk puts, obviously, some restrictions upon the choice alternatives. There are, probably, a number of alternatives, which could work rather well if they were introduced simultaneously by all countries, but which should lead to brain drain if they were applied in one country separately. As an example of such alternatives I can mention the system according to which the costs of education is financed by indirect taxes on the use of services rendered by people with academic education.

7. Education and income distribution

I agree with most of what Lindbeck says about the effects of education on income distribution. His thesis that there is no unique relationship between the level of education and the degree of income inequality is doubtless true. In fact, this statement could be strengthened a little by saying that it seems far from impossible that an increase of education intensity will, in general, cause tendencies to a more unequal distribution of factor incomes; it is not difficult to construct models giving that result. However our knowledge is so incomplete that the only decisive conclusion we can draw is that more research is needed.

One of Lindbeck's conclusions is that the effects on income distribution is depending more upon the distribution of education among different social groups than upon the total volume of education. This might be true but I am not ready to accept his statement that the distribution effect of an increased education within the lowest income groups is quite clear. It seems to be conceivable that those who receive increased education, will become so much more efficient on their jobs that the demand for uneducated labour will decrease more than the number of still uneducated people. Such a mechanism would mean that the rise of the education level has a labour augmenting effect and that this causes a fall in the marginal productivity of the uneducated.

I must admit that I am a little sceptical to the conclusions, which Lindbeck draws from the rise of the unemployment rate among people with academic education (chart 5). The figures cannot be seen as a proof of Lindbeck's assertion that the "education explosion" in Sweden has created unemployment. It is certainly true that unemployment rose during the years 1971 and 1972 but this phenomenon was not specific to the academic professions. Those two years were characterised by a rather deep recession and unemployment rose sharply within all professions. Thereby the employment difficulties were especially pronounced for young people just entering the labour market. These facts make me inclined to reverse Lindbeck's statement by saying, a little provocatively, that the "education explosion" in Sweden has created very little - if any - unemployment within the academic professions.

8. Equality of opportunities

In the last section of his paper Lindbeck makes some reflections concerning the goal conflicts appearing in the distribution ideologies. There is, however, much more to say about these conflicts, but it should carry too far to go deeply into these problems, so I shall just add a few remarks.

Most people agree that equality of opportunities is a goal to aim at. But what shall we really mean with this equality? Is it just equality of economic opportunities? I don't think so. The existing inequality of opportunity is, obviously, due not only to economic factors but also to individual differences in health status, adolescence milieu, general ability, etc. Therefore, if we want to create a society characterised by real equality in opportunities we must remove also these differences or at least compensate for them. In trying to do so we will, however, probably meet the fundamental problem whether it is possible to reach the goal without a heavy discrimination of the more well endowed part of the population. To what extent are we ready to accept such a discrimination?

A Further Comment on Lindbeck

by

Robert Neild

I find myself taking a more positive view of what can be accomplished by traditional measures to achieve greater equality and equality of opportunity than the one which I derive from Professor Lindbeck's paper. I take Sweden, where I recently lived for 4½ years, as evidence of what can be accomplished in this direction, whereas Professor Lindbeck tells us mostly about the limits of Sweden's achievements and the difficulties he sees.

I can see several reasons for this difference:

(a) I come from Britain where economic and social inequality is so much more in evidence than it is in Sweden that I am greatly impressed by what Sweden has achieved. Professor Lindbeck, as a Swede, takes the achievement for granted and sees the defects. I believe many European countries, e.g. France, Belgium and Italy, are nearer the condition of Britain than that of Sweden, so that consideration of how Sweden has achieved her present state would be fruitful.

(b) In approaching this kind of problem I am an institutionalist whereas I think I can fairly say that Professor Lindbeck is a neo-classicist. I focus on the main social differences I see and, in the absence of evidence, I am sceptical about propositions as to the effects of taxes on incentives and efficiency derived from a priori reasoning.

(c) I guess - though I know one cannot look into another man's heart - that I am more of an egalitarian than Professor Lindbeck.

Sweden

The main virtues which impressed me (1) about Sweden compared with Britain were:

(a) The very much greater apparent equality of wealth. (I use the word in the traditional sense to mean physical and financial assets excluding so called "human capital").

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(1) I should emphasize that I was in Sweden on an excursion out of economics (into peace research). I did not spend my time studying the Swedish economy. Hence my views are rather impressionistic. I hope Professor Lindbeck will correct any factual errors I have made.

(b) The much greater equality in consumption. The difference between a worker's style of life and his boss's is very slight compared with that in Britain; and there is very little really conspicuous consumption of the kind that is likely to excite a sense of social division (e.g. involving chauffeur-driven Rolls Royces, large houses, domestic servants, exclusive places of amusement and so on).

(c) The great equality in accent, manners and style. People generally talk to one another as equals. And women enjoy a relatively high status. Compared with Britain, it is a classless society - if one ignores immigrants.

(d) The quality and apparent equality of treatment achieved in health, education and other services. There is virtually no private education and very little private medicine, compared with Britain.

(e) The willingness of people to study social problems and seek improvements is an open and egalitarian spirit.

The main problems one saw were:

(a) The evidence that social background still had a very strong influence on educational and occupational achievement.

(b) The irritation expressed by people with higher incomes against the high rates of direct taxation.

Both problems exist in Britain too, I shall ignore the first, which Professor Husén has dealt with so well in his admirable paper. I shall return to the second.

If one asks what accounts for the apparent differences in the distributions of consumption and wealth between Britain and Sweden, a large part of the answer surely lies in the tax system, though part lies in the history of the pre-tax structure of wealth and income.

Britain

In Britain we have had until now (1) no gift tax. Wealth could be transferred tax free from one generation to another provided it was done a few years before death (2).

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(1) Prior to the gift and wealth taxes introduced by the present Labour Government, the implementation of which could be reversed if it fails to be returned at the forthcoming election.

(2) The qualifying period was 3 years for a long time and was then increased to 7 years at partial, tapering rates. In fact there has usually been a loophole so that with ingenuity death-bed gifts could be made tax free.

We have had no wealth tax, only a higher rate of tax on unearned income than on earned. But it has been easy for those with high tax rates to substitute capital gains for income and these have been taxed (on a realisation basis) at a flat rate of only 30 per cent (1). A simple method of substitution has been the formation of "split" investment trusts in which two forms of share are issued - "income shares" whose holders get as dividends all the income of the trust fund, and "capital" shares which get no dividends but are a title to an annually increasing share of the fund's assets. The first type of share suits the person with a low tax rate, the latter the person with a high tax rate.

Land

Britain, since the war, has had stringent planning regulations governing, on aesthetic and social grounds, where building is permitted. A planning permission (i.e. licence) must be obtained before any development or redevelopment is undertaken. This system creates an acute scarcity of development land in a country which is anyway densely populated and where private ownership of land, often by large landlords, predominates. It has been accompanied by varying tax/ownership arrangements as left and right governments have alternated. Labour started after the war by setting out to nationalise all development values and pay compensation in a once-for-all exercise, but preparations were not quite completed when they lost office in 1951. Having experimented with a weak half-measure between 1964 and 1971, they are now committed to nationalising land as it is needed for development - or ahead of need so that a land bank is built up - but details are not known. On the other hand the Conservatives by relaxing taxation and the terms of public purchases reduced step by step the public inroads into private gains from land until, under the last Conservative Government, there was no special taxation of gains from land, (over and above the general 30 per cent tax on capital gains made by persons) and, in the case of companies, payment of normal capital gains tax could be postponed indefinitely if the proceeds of a sale were re-invested in more property. The result of this, combined with the relaxation of all controls on credit, was so wild that the government reversed its tracks and announced a heavy special tax on gains from land which the Labour Government, on coming to power, put into force. The gains made during that period were amazing. They underlay a lot of stock-exchange take-over bids, whose motive was "asset-stripping", i.e. selling off the idle land, including for example a factory's football field, if planning permission could be obtained for it. It meant that planning permissions, which were given no more freely than before, became enormously valuable and land prices were bid up: the temptation to seek to obtain them by fair or foul means must have increased, probably with a corrupting effect on local government. All sorts of people - property developers, traditional landlords, farmers, owners of large old-fashioned houses with gardens which could be built-up - made windfall fortunes. These were conspicuous in every community and in the case of big deals they attracted national attention.

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(1) For a short period under the last Labour Government gains realized in less than a year were taxed as income, but the flat rate of 30 per cent applied if you delayed realisation until a year was up.

This was an extreme eruption of what has been with interruptions a continuing important source of inequality in Britain: the private ownership of land combined with voluntary (i.e. avoidable) taxation of estates on death and the accrual of windfall gains as the "natural" scarcity value of land has increased and man-made scarcity has been superimposed - rightly up to a point - through the planning machinery. In Sweden the problem is, I believe, relatively minor. It is a sparsely populated country to start with. (Sun not land is its scarce natural asset). Land round the conurbations has been taken into public ownership on a large scale well ahead of development. But I suspect that in many other countries land is a very real problem. Rising population and full employment mean that rising rents and land values are now a powerful continuing phenomenon, giving rise to uncovenanted windfalls for whoever owns the land. There can be no hope of achieving meaningful equality or equality of opportunity if there is private ownership of land, combined with weak taxation of inheritance and lack of taxation of increments in rent or capital values. I need not remind the conference of the views of John Stuart Mill - or Henry George - on this subject.

Taxation of foreigners

As regards taxation of foreigners, Britain until this year taxed foreigners who came to work or live in Britain on a remittance basis - subject to minor exceptions. This means that Britain, in particular London, has been a tax haven. An American banker coming to work in London for a few years could avoid British tax altogether by arranging that his salary should be paid into an account in New York, alongside which he opened an overdraft account from which he drew funds on which to live in London. Thus he never remitted any part of his salary to London and was liable to no tax. (Although the City's apologists like to claim that it was the extraordinary efficiency, honesty and skills of the City which brought the bulk of the Euro-currency market to London, the skeptic may well ask whether these tax provisions, as generous as those in any banana tax haven, did not have something to do with it). Similarly rich or retired Americans living on unearned incomes have been able to avoid tax too, an advantage which, combined with the common language, lack of violence and other features, makes Britain an attractive place to live. The result is that London has acquired a substantial population of people who mostly come from richer countries, and pay less tax than the native British. This introduces into society a group (in addition to diplomats) who mostly enjoy and display a very high level of living. Those who work with them, in business and finance, and their friends - in so far as they do not live in colonies - naturally aspire to keep up with them and come to feel that in some sense they have a right to do so: a sanction is thus provided for high living and for the pursuit of tax avoidance devices which permit it: if Mr. X from the foreign bank pays no tax, why should you? Moreover, the foreign community living richly, and the London shops which cater for them with fancy goods and services which are out of the reach of any ordinary member of the salariat, including professional persons, constitute an alien piece of unattainable riches which the worker or salary-earner can look on with envy or wonder but which he can scarcely regard as part of the opportunities open to himself or his children.

Here again Sweden is much more strict, rightly in my view.

The Approach to Traditional Wealth

This background leads me to feel concerned about the redistribution of traditional wealth and to feel that Professor Lindbeck's analysis somehow steps over that subject rather lightly. This causes me to question several points in his method of approach:

(a) Analysis which proceeds from the distribution of factor income to "welfare" (via the link to disposable income and via indirect taxes and prices) is not a satisfactory basis for analysing the distribution of welfare at the top end of the scale where property is important and spending may depend on capital as much as, or more than, on income. The man with low yielding assets or a hoard of gold which he spends so as to live well is reckoned to enjoy little or no income or welfare. The distribution of expenditure would be better. Professor Lindbeck recognizes these difficulties but treats them as rather minor qualifications. Moreover he suggests that differences in wealth may partly reflect differences in the preferred time path of consumption over life, as well as differences in the preferences of consumption relative to wealth, on the part of people with the same life income.

It is certainly true in Britain as well as Sweden that non-inherited wealth is important, but the reason for the bigger differences in wealth of this kind arise not from the chosen time paths of consumption over life but from the fact that if you are successful in business you need to plough-back your profits and keep your business growing; you cannot stand still. The process of growth in a market economy throws up inequalities within a life span. In Britain, inheritance is very important too.

(b) The proposition that "human capital" is nowadays the most important part of total wealth, casting traditional capital into the shade, is what some people would call a very strong proposition. It requires strong scrutiny.

First, suppose the share of labour income in the national income had remained constant over history (which is not far from the statistical record) and that the rate of interest applied to the earnings of labour and the earnings of other assets were the same at any point in time, in what sense could human capital be said to have increased relative to physical capital? Professor Lindbeck argues that full employment policies have created greater certainty of future income than before "so that it makes much more sense than previously to capitalize expected future wage-earner incomes - without using an extremely heavy risk discount" and goes on to an illustrative exercise in which he capitalises all expected future incomes in Sweden and arrives at a figure for human capital which heavily outweighs conventional wealth widely defined (individually owned assets plus durables plus pension rights).

For the purpose of comparing the wealth of different nations a procedure of this kind - for example the capitalising of expected national incomes - might make some sense, though it would only be a gloss on the game of comparing current levels of national income. But for the purpose of examining the inter-personal distribution of wealth the procedure seems just as questionable as it would have been before employment became more secure, for the following reasons:

(i) The capital value of income from work and income without work are added together as if work did not exist or was effortless - a notion wholly inconsistent with the pleasure-pain calculus of neo-classical economics, and contrary to the patterns of behaviour of a competitive economy. Are we to suppose that a man is indifferent between working for so much a year and being given an annuity which yields him the same amount without work?

(ii) The proposition that physical and financial assets are "much more liquid" than human capital seems a rather minimal way of expressing the difference between being a man with capital and one without. If you have capital, you can at any time live off your capital, you can start an enterprise, you can be your own boss, you can be less subservient because you can always quit your job and live well while you look for another. Added to which, human capital, unlike traditional capital, has no market value. It cannot be bought and sold for a lump sum precisely because sales of that kind have historically involved infringements of liberty and exploitation and so came to be regarded as wholly unacceptable.

As regards the general approach to our problems of education, inequality and life changes, I see a risk that calculations of human capital and debates about education may be blown up until, by a process of what Gunnar Myrdal would call opportunistic reasoning, the problems of traditional capital are, consciously or unconsciously, tucked under the carpet.

This would be unfortunate for two reasons:

(a) In some countries at least, traditional wealth is a highly important source of inequality and probably the one which people mind about most.

(b) Whereas the transmission of genes from parent to child cannot be stopped and the transmission of social and educational background perhaps cannot be moderated much within the framework of the traditional family, the transmission of traditional wealth can be, and has been, circumscribed to a greater or lesser degree in a number of countries. This is the area where action is possible, at least in some political and social conditions, and where there is some experience to look at.

I therefore suggest that we should ask ourselves rather carefully what is the meaning of human capital and in what contexts, if any, is it a useful concept; and secondly whether we should not consider separately the question of the distribution of traditional wealth, its transmission by inheritance and gift and the extent to which this has been moderated by different measures in different countries.

I found myself asking the question how far could Britain, and other countries like her, go towards Sweden by traditional fiscal means (including possibly public appropriation of land or increments in its value). This is an important question. Recently social cohesion has been under such strain in some countries including Britain, that economic progress has been retarded. Whilst many causes, including external inflationary forces and unsound fiscal policies at home can be mentioned, the anachronistic social structure and weakness of redistribution policies may help to explain why Italy and Britain have had the worst trouble. The survival of mixed economies combined with democracy of the kind we know may depend on continued evolution towards greater equality and equality of opportunity.

We can pose several questions.

(a) What has been the role of redistributional measures in Sweden as regards wealth (traditionally defined)? How uneven was the distribution 40 years ago? How much has it been equalised? (Professor Lindbeck does not deal with these questions. I have the impression that some large concentrations of wealth have been preserved but only through alienation of assets into charitable trusts so that the power of the "owners" to spend is circumscribed but their powers of management are preserved. I do not know if this is right.)

(b) How far can we hope to follow Sweden in using fiscal measures to achieve redistribution of income and wealth?

(My view of this problem is that Sweden has enjoyed a combination of three assets, (i) high tax morality, including administrative honesty and openness (everyone's income declared for tax is published); (ii) a relatively good (but not perfect) tax base whereby wealth and gifts are taxed, as well as income and capital gains; and (iii) highly progressive rates of tax.)

Britain has combined (i) and (iii) - tax morality and high progressive tax rates - but has lacked (ii) - a solid tax base: the legitimate loopholes for owners of property - not for those whose income are earned and taxed at source - have been so great that the progressive rates have not bitten properly and tax morality has not been tested. The present Labour Government is planning to introduce wealth and gift taxes, is reducing the remittance basis for foreigners and is aiming to tackle land. If it is returned at the coming election and does all these things, tax and administrative morality will be tested.

(Some other countries combine characteristics (ii) and (iii) but lack (i) - they have a good structure in theory but lack tax morality and the ability to enforce the system.)

(c) What are the limits to the redistribution of traditional wealth?

(Professor Lindbeck suggests that wealth and inheritance taxes may inhibit the entry and growth of enterprises. As against this one can observe (i) that the passing of firms to second or third generations is a well-known road to decline; (ii) that arrangements can be made to defer wealth tax on small firms if that is thought advantageous, and (iii) for farmers it is possible to offer deferment, and/or to make provision for farmers to sell the land to the state or to private agencies at death or before.)

(d) What are the limits to the redistribution of personal income (comprehensively defined) or expenditure by fiscal means?

(My impression here, and I think it is consistent with Professor Lindbeck's view, is that work incentives have not been a problem in Sweden nor has migration (partly because Sweden is a rich country). But there has been a reaction against the very high rates of personal taxation which an increasing proportion of people were forced to pay as inflation and growth pushed them up the tax net. This found expression politically and was probably reflected in some marginal erosion of tax morality. In making concessions, the government seems to me not to have been reversing its redistribution policy so much as stopping that unintended element of redistribution which had come about inflation and had not been introduced after political debate and approval. As inflation has gathered pace fiscal drag may in this way have become a threat to tax morality in many countries.)

Finally, I think we should pay attention to one other point which arises from the comparison of Britain and Sweden, namely the extent to which the provision of free services or goods such as health, school meals or education achieves greater equality by removing those items from the area within which income differences find expression in spending. The more goods and services are provided free, the less the value of extra income.

In the case of health services, there appears to be a fringe of private medicine in both Britain and Sweden, but in Britain, where the hospital services (not the general practice system) are not nearly as modern and well developed as in Sweden, the fringe is very much larger. About two million people pay for private medical insurance (without tax relief), although they pay through the tax system for the public service. Hence a two-tier or two-class system has emerged and relative income finds expression in the quality of medical service obtained, in the time spent waiting to enter hospital and so on. The higher the standard of the public service the less will this happen. In Sweden the standard is higher - though not without problems.

As regards education, Britain is remarkable for the number of its private schools. Social background may dictate to a high degree who succeeds in the state schools in Sweden, but at least lack of income is not an explicit obstacle to entry to the best schools.

Differences of this level in the extent and quality of free services plainly influence equality, the social atmosphere and in some degree opportunities. I suggest that we should not ignore them.

Education, Inequality and Life Chances:

A Report on the Netherlands

by

Jan Tinbergen

Summary and Conclusions

1. Social security and income distribution in the Netherlands are close to the Scandinavian and British systems and extent.
2. Also the tax systems are very similar.
3. A (small) majority of Dutch citizens consider income distribution to be too unequal; but a majority also is satisfied with its own income.
4. A reduction by over one-third of inequality in incomes took place between 1921 and 1967.
5. There are indications that this reduction will continue at a somewhat higher rate until 1990.
6. The number of university graduates is increasing rapidly, and this will contribute to a fall in inequality of incomes.
7. Opinions among economists, in various countries, differ on this last conclusion.
8. Income inequality after redistribution in Eastern Europe is about the same as in North-Western Europe.
9. Equity in income distribution will probably require a further reduction by one-half of inequality around 1965 and with the political means now available only be reached around the year 2000.

I. SOME GENERAL CHARACTERISTICS OF THE NETHERLANDS

I.1 Geography

The social and political situation and potentialities of a country cannot be fully understood without some background information on its characteristics.

The Netherlands are a small developed country with a mild climate, thanks to the Gulf Stream, and with a fertile soil in half of its territory. That same part is almost at sea level, implying that to struggle against and to "play with" water constitute activities of some importance. Historically Holland's situation could be called to be at the cross roads of important trade flows and to-day still it is the gateway to Western Europe with the port of Rotterdam being the world's number one in traffic volume (not value). Trade, transportation and agriculture originally were the principal economic activities and industrialization started late. To-day, however, manufacturing industry contributes 40 per cent to the country's national income, a normal figure.

An additional geographical factor of relevance to the social, political and cultural position is the country's situation on the border-line between Catholic and Protestant Europe.

I.2 Mentality

The country was ruled for quite some time by bourgeois traders, implying that neither feudal nor refined craftmanship elements were strong. A sense of individualistic freedom, and an outspoken interest for knowledge about foreign countries prevailed. Being Calvinists rather than Lutherans, as well as Protestant, they were less egalitarian than Scandinavians. Democracy was elitist in the sense of being applied first of all to the Calvinist trade-oriented ruling class, excluding from public posts Catholics until 1853. In their areas of specialization Dutchmen are somewhat perfectionists; tempered, at times, by a sense of realism. Mobility, both geographical inside the country, and social, is not high. Social stratification is less than in Latin countries but more than in Denmark and Norway. As in all continental languages, the two words for "you" still exist, but the more familiar equivalent gains on the stratifying form. Part of the low mobility inside the country may be the counterpart of the high mobility of the seafaring part of the people.

For a long time population growth surpassed that of most Western European countries, with the strongest increases in both Catholic and strict Protestant circles. In the last few years birth control has a tendency to reach the European level.

I.3 Society

Due, perhaps, to the climate as well as to the smallness of the country and the quality of the medical profession, health as expressed by longevity held a world record for quite some time and still is among the highest in the world.

In contradistinction compulsory education for children 6 to 12 of age was introduced as late as 1900, with a majority of one vote only.

Climate as well as individualism may have contributed to a comparatively high quantitative standard of housing (cf. also section III) but not qualitatively.

Partly as a consequence of living on the frontier of Catholicism and Protestantism, the population, its culture, political and social structure have long been and still are notably divided. Protestantism itself is subdivided into many sects, which only after World War II started somewhat to integrate. In the 1960's, 44 per cent of primary school pupils visited Catholic schools, 28 per cent Protestant, both types being called "private", and 26 per cent only visited public schools. All costs are paid by public authorities, however, which supervise the quality of education given.

Political parties are partly based on religion (about half of the electorate voting for them), partly on non-religious social distinctions. During this century a one-party government never existed. This implies that many social institutions are based on a compromise between Christian and socialist principles - themselves not unrelated, of course. This implies in an interesting way to the introduction in 1948 of the public body of the Socio-Economic Council (SER or Sociaal-Economische Raad) to which some public power has been delegated; its more important task being, however, to advise the government on socio-economic policy. Communist influence (itself split) only exists in Amsterdam and in a limited Northern area with very large farms. Trade unions of some five different philosophies exist; and even goat raising associations are separately organized for Protestants, Catholics and others. There is a public sector in business, producing 20 per cent of GNP, and investing 40 per cent of total investment (1965). Partly this is a consequence of some socialist influence, but another part of the explanation is of a more technical character. Dutch State Mines (DSM) were created in 1902, for lack of private capital interested in mining; in 1973 the last state coal mines were closed (just before the oil crisis) and DSM is a big well-run chemical corporation. State farms exist as a pre-stage of private farms in the areas reclaimed from the sea, since in the early years risks are too high to be borne by private farmers.

Co-operatives are strong in a few cities only and far less important than in Sweden; possibly a reflection of individualism.

I.4 Internationalism

Although international solidarity is pitifully weak throughout the world, relatively speaking the Netherlands are a favourable exception. This may be illustrated by the amounts made available for "official development aid" (ODA) as a percentage of GNP as shown in Table I.4.

Table I.4. Official Development Aid (Percentage of GNP) by a number of countries for 1962, 1967 and 1972

Country*	1962	1967	1972	Country*	1962	1967	1972	Country*	1962	1967	1972
AVS	.43	.60	.61	D	.45	.41	.31	S	.12	.25	.48
A	.03	.14	.09	I	.18	.22	.08	CH	.05	.08	.22
B	.54	.45	.55	J	.14	.31	.21	GB	.52	.44	.40
CDN	.09	.32	.47	NL	.49	.49	.67	USA	.56	.43	.29
DK	.10	.21	.45	N	.14	.17	.41				
F	1.27	.71	.67	P	1.26	.54	1.91	Average	.52	.42	.34

Source: OECD, DAC 1973 Review, Paris 1973.
* Throughout this paper countries are indicated by their car symbols.

The international orientation of the Netherlands reflects its geographical and historical situation as sketched in the preceding sections. As a rule educated Dutchmen have some knowledge of English, French and German and on a number of issues their information is wider than in many other countries. Nationalist feelings are not strong and there is an aversion to militarism.

I.5. The Economy

As already observed, trade and transportation as well as agriculture were the early specializations of the country. Industrialization came belatedly and started around 1870 only. It was financed from trade profits rather than by investment banks. The (public) Investment Bank came into existence after World War II only. Like English banks Dutch Banks are suppliers of short-term credit mainly.

Having been a capital exporting country for a long time - with a high propensity to save, a few per cent above the long-time 12 per cent of Britain and the USA - monetary authorities have a fairly strong position. Even the trade unions have an understanding for the relevance of the country's competitive position as a basis for employment. The international orientation of Holland is also illustrated by the volume of its exports of goods and services, amounting in 1972 to 50 per cent of net national income at market prices. Finally, its four big enterprises are multinationals (Shell, Unilever, Philips, AKZO).

The Netherlands' exports of goods still show some specialization on agricultural products (more than a quarter), and, in addition, metal products (including electronics and in total amounting to 30 per cent) and chemical products (especially oil refinery, and in total one-sixth).

Both the public and the private sector are considerably less decentralized than in Belgium, where the number of municipalities as well as that of shops, to quote two examples, is about double the number in the Netherlands.

II. SOME NOTES ON THE HISTORY OF INCOME DISTRIBUTION AND SOCIAL SECURITY

II.1 Economic Development

As already stated, industrialization started about a century ago. At about the same time trade protection was abolished, navigation on the Rhine became free and some well-known banking and shipping enterprises were established. Agriculture went through a very tough period but came through strengthened by specialized education and extension services. Manufacturing industry was a small sector up till around 1900 and business cycles can hardly be detected in the (scarce) economic indicators up to 1914. A seemingly anti-cyclical movement in railway construction probably is due to a three or four year lag in the execution of decisions by public authorities (who built the tracks, but had the operation carried out by private companies). Clear traces of business cycles were visible mainly in shipping, reflecting German industrial activity. For the last half century the Netherlands fully participated in international trade cycles with the Great Depression as the well-known shock to the trust in *laisser faire*. The number of enterprises with over 500 workers was no more than ten in 1888 (mainly textiles), had risen to almost 100 by 1908 and amounted to 630 in 1970.

II.2 Education

In 1860 eleven per cent of children aged 6 to 12 had no schooling whatsoever. As already said, compulsory six-year schooling was introduced in 1900 only. Of the group 6-14 years old participation was around three-quarters ever since 1900; of the age group 12-19 years participation rates of general education rose from 3.9 per cent in 1900 to 14.8 per cent in 1938 and 32.9 in 1968 and participation rates of professional education from 4.0 to 15.5 and 36.9 for the same years. Finally, participation in scientific education in the age group of 18-25 years was 0.4 per cent in 1900, 1.1 per cent in 1938 and 4.5 per cent in 1967. While for a long period the educational system of the Netherlands was rather traditional, in recent years major reforms to modernize the system have been introduced and are in the process of penetration. Better opportunities for switching from one chain to another and to higher levels have now come into existence.

II.3 Social Security

The first social legislation was passed in 1874, prohibiting child labour. Other acts regulating rest breaks in a number of unhealthy types of activities followed towards the end of the nineteenth century, including dock work and stone cutting. General social legislation started in 1901 by insurance against labour accidents and providing cheap dwellings. The process went on stepwise and at present a vast and complicated system of social security is in operation. Its extent is illustrated by Table II.3, where figures on social assistance as distinct from benefits from social insurance have been added. It will be seen that in 1900 half of such assistance was private.

The system of social insurance is deplorably complicated: each type has a different ratio of contributions by employers, employees and public authorities; often the execution is in different hands, varying from single enterprises to the tax authorities (cf. Table III.3.2).

Table II.3 Extent of Social Insurance and Assistance in the Netherlands, 1900-1973

Year	Net Nat.Inc., Market Prices	Benefits of Soc.Ins.	Benefits as % of Nat.Inc.	Social Assistance Total	Public
	1000 mln hfl			Millions of hfl	
1900	1.80	0	0	17	8
1930	6.24	0.10	1.6	98	74
1938	5.40	0.23	4.3	135	110
1949	15.3	0.68	4.4	190	150
1960	34.8	3.3	9.5	441	376
1973*	130	28	22		1002**

* Estimated, ** 1967, Source: Central Statistical Bureau.

II.4. Taxation

In the later years a considerable degree of redistribution of income was brought about by public finance through taxation on the one hand and the supply of services below cost on the other hand. Some international figures for 1933 and 1971 illustrate both national differences and historical evolution. They are given in Table II.4.1 below and have partly been taken from Scandinavian sources, which explains the units of average income chosen to illustrate differences in level of general well-being in the countries concerned. Most of the figures show considerable similarity between the Netherlands and the Scandinavian countries. It seems worth noting that indirect taxes were relatively low in the Netherlands in 1971.

Table II.4.1. Income per Capita, Tax Burden and Indirect Taxes as Percentage of Total, 1933 and 1971

Country	Income per Capita 1914 Swed.kr*	 1000 Norw.kr.	Taxes as Perc. of Nat.Income		Indirect Taxes as % of Total Taxes	
	1933	1971	1933	1971	1933	1971
D	531	25.1	23.0	36.6	48.0	36.2
DK	604	24.7	20.1	42.7	43.5	40.0
F	661	22.9	26.3	36.3	49.8	40.4
GB	968	17.0	25.2	36.0	36.4	42.6
N	522	22.7	24.6	44.8	37.9	42.2
NL	552	19.9	18.6	41.4	44.2	28.1
S	667	31.2	15.8	44.7	41.4	32.1
SF	331	17.2	20.1	34.7	51.7	.
USA	1044	36.0	18.1	29.7	[illegible].2	33.2

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* Swedish kronor of purchasing power in 1914. Sources: for 1933: Undersökningar rörande det samlade skattetrycket i Sverige och utlandet, S.O.U.1936:18, Stockholm 1936 (by Erik Lindahl and collaborators); for 1971: Inger Gabriëlsen, Aktuelle Skattetall 1973, Statistisk Sentral byra, Oslo 1973 (Artikler, Nr. 59).

Table II.4.2. Comparative Buying Power per Person for Some Categories in Some Countries

Year		1930	1954	1970
Type of Income		Skilled Worker	Steel Worker	Average Citizen
Country	B	50	86	3860
	D	70	69	3950
	F	70	80	4070
	GB	100	.	3660
	I	45	64	3430
	L	.	100	.
	NL	85	67	3680

Sources: 1930: Ford Inquiry by ILO, Geneva 1931. Real wage in capital of country.

1954: European Coal and Steel Community, Comparison of the Real Incomes of the Workers in the Community's Industries, Luxembourg 1956, p. 85 of Dutch edition, annual income of married worker with two children.

1970: World Bank, Trends in developing countries, Washington DC 1973, Table 1.4; corrected as suggested by B. Balassa, "Just how misleading are official exchange rate conversions ?", The Economic Journal 83 (1973), p. 1258; real incomes in US $ per capita of total population.

Table II.4.2 illustrates, in a crude way, the considerable shifts in real incomes between seven member countries of the European Community. The impact of the Second World War on Britain and the Netherlands has been negative, whereas Belgium and France improved their relative position, which had suffered considerably from the First World War.

Generally we may state that the Dutch social situation improved very clearly over the last half century, notwithstanding the deterioration of the relative position among the neighbouring countries with regard to national income per capita.

III. INCOME DISTRIBUTION AND SOCIAL SECURITY AROUND 1973

III.1 Primary Income Distribution and Income Distribution After Redistribution Compared with Some Other Countries; Before and After World War II

In this section some figures will be presented illustrating income distribution and social policy, compared with a few other advanced countries, before and after World War II. Table III.1.1 contains some relevant figures on primary income distribution. Table III.1.2 gives some information on the impact of complete redistribution (taxes and receipt of services below cost) and on difference between figures for households and for consumers. Figures per household must be divided by the number of persons per household in order to arrive at figures per consumer.
As the briefest characterization of inequality the ratio *r* between upper and lower quintile (i.e. 20 per cent of population) has been chosen.

Table III.1.1. Incomes of Lowest (L) and Highest (H) 20 per cent (Quintiles) in Per Mille of Total Income Before (b) and After (a) World War II, Type of Income Recipients (T) and Concentration Ratio R: for Selected Countries and Years

Country	b			a			T	R,b		R,a	
	Year	L	H	Year	L	H		Year	R	Year	R
CDN	1930/1	21	485	1951	39	399	Wages,sal.	.	.	.	.
D	1936	30	530	1950	40	480	Recipients*	1936	49	1950	45
DK	1939	44	510	1963	52	426	"	1939	50	1952	44
GB	1938	.	500	1949	.	457	"	1938	43	1964	40
NL	1935/6	59	512	1962	45	469	Households	1938	48	1962	44
S	1935	.	561	1954**	56	428	Recipients*	1935	54	1963	40
USA	1935/6	41	517	1960/1	46	455	Families	1903	50***	1956	33***

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* All individual income recipients; ** Unadjusted tax records *** Wages only.

Source: J. Tinbergen, "Trends in Income Distribution in some Western Countries", in M.B. Connolly and A.K.Swoboda, eds., International Trade and Money, London 1973, p.85 ff., where primary sources have been mentioned.

Table III.1.2. Ratio r of Incomes in Upper to those in Lower Quintile before (B) and after (A) Complete Redistribution for Households (H) and per Person (P) for Selected Countries and Years

Country and Year	DK 1963		NL 1935/6		NL 1962		S 1948		USA 1935/6		USA 1959	
	B	A	B	A	B	A	B	A	B	A	B	A
r(H)	8.1	1.5	8.7	6.6	10.4	6.5	14.5	12.3	12.6	.	9.9	.
r(P)	.	1.2	.	.	3.2	2.1	.	.	12.0	.	8.2	.

Source: same as for Table III.1.1.

The most striking features of Table III.1.2 are (i) the very strong redistribution in Denmark and (ii) the strong influence of household size in the Netherlands. In Holland we found (cf. source) the largest difference in relative size of household of upper and lower quintiles between pre-war and post-war figures; probably reflecting the belated penetration of birth control in this country where many strict Protestants as well as Roman Catholics considered birth control taboo before the war.

Some comparisons with income distribution in Eastern European countries have been made by Wiles and Markowski [23] and Michal [9]. The former two authors arrive at the conclusion that the income inequality in Britain on the one hand and the Soviet Union and Poland on the other hand is practically the same. The latter author quotes inequality figures for Czechoslovakia and Yugoslavia which are lower than those for Western mixed-economy countries. These figures are figures for gross incomes, however; since redistribution taxes are much higher in the latter type of countries than in the former, they do not prove that there is a real difference. The same applies to some figures collected by Lydall, mentioned in my article [15].

III.2 Tax System Compared in More Detail with some Other Countries

In Table II.4.1 some comparisons with tax systems of some other countries have been already presented. Some more information will be found in this sub-section (Table III.2).

Table III.2. Some more Data on Taxes (1971).

	Income Tax* of Couple with 2 Children, per cent of Net Wage Income		Max. Rate Inc. Tax	Income at which Max. Rate starts	Wealth Tax $5x10^5$ Nkr	Motor car Tax p.Car	Corp. Tax Perc. ***	Depreciation Allowance	
-	Nkr 20,000	Nkr 80,000						1st yr.	10th yr.
D	18	29	55	462	1.2	2466	53/16	20	6.4
DK	6	42	65	90	0.4	3002	36	30	4.1
F	-3	13	49	335	.	953	50	25	4.3
GB	.7	25	75	330	.	'401	49	80	1.9
N	12	39	74	300	1.4	2609	46.5	15	0.0
NL	10	37	71	289	0,4	2401	48	10	10
S	-3	40	78	210	0.6	2519	40	30	0.0

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* Incl.soc.insur.prem. ** M 1000 Nkr *** Non-distr./Distr.Profits.

Source: Statistisk Sentralbyrå, Aktuelle Skattetall, Oslo 1973, Artikler,Nr.59.

Quite clearly France constitutes the exception, in comparison with the other countries shown, and is more conservative, except with regard to income taxes on low incomes and to corporation profit taxes. Germany shows a low maximum tax rate, which, moreover, starts at the highest income among the countries shown. Corporation tax in Germany discourages autofinancing and hence tries to maintain a stronger influence of the capital market. Investment is heavily subsidized (in the form of high depreciation allowances permitted for the calculation of profits in the early years) by the United Kingdom, whereas the Netherlands did not do so in 1971. In Holland this allowance varies according to the cyclical position of the economy. Generally speaking again the similarity of Scandinavian and Dutch tax policies is clear.

III.3 Social Security System: Total Benefits, Costs and Contributions

In sub-section II.3 we stated already that the Dutch system of social security is complicated. For years already a simplification is in preparation, but no generally agreeable proposal has been accepted yet. Some aspects of the complexity are that some social risks are insured for the population at large (which usually implies low costs), others for employees only and extended to small independents, but on different terms. Contributions are forthcoming from employers, employees and the general budget, in different proportions for different types of risks. The execution of insurance is sometimes decentralized (since individual enterprises or industries had their regulations already at the moment when the type considered was made compulsory), sometimes centralized with the Social Insurance Bank (a public body) and in other cases with the tax service (mainly the insurances for the population at large). Apart from social insurance, social assistance is provided for in cases where no claim on insurance benefits exists (cf. Table II.3).

Table III.3.1 gives some information on the benefits distributed by the social insurance branches and by special pension funds for the year 1972.

Table III.3.1. Total Benefits, in Thousand Million Guilders and as a Percentage National Income, in 1972, of Social Insurance and Old-Age Pension Funds

Type of Risk	Benefits	Percentage of Nat.Income
Invalidity	0.126	0.1
Inability to Work	2.83	2.4
Unemployment	0.70	0.6
Risks in Building	0.07	0.1
Sickness, compensation	2.86	2.4
Costs of sickness, compuls.ins.	3.17	2.7
vol.ins.	0.67	0.6
old-age	0.82	0.7
special illn.	2.01	1.7
Old-age pensions*	7.02	5.9
Widows and orphans	0.98	0.8
Family allowances	2.90	2.4
Total Soc.Ins.	24.13	20.3
Total Old-Age Pens.**	3.28	2.7

* General ** For Specified Groups (Civil Servants, Industrial Branches, Enterprise Funds). Source: Central Bureau of Statistics.

Because of the different nature of the various components of social insurance, their administration costs as percentage of benefits vary a good deal. Table III.3.2 shows some data on these costs as well as on the groups which benefit from each type of insurance.

Table III.3.2. Costs of Social Insurance as Percentage of Benefits and Groups Included in Each Scheme (around 1968)

Scheme	Groups	Costs (%)
General Old-Age Pension	All citizens over 65	0.9
Widows and Orphans	All widows and orphans	3.7
General Family Allowance	All children after second	3.1
Family Allowance	First and 2nd child of employees	2.6
Family Allowance	First and 2nd child of small independents	8
Sickness Compensation (centr.)	Employees under 65	0.6
Additional Sickn.Comp. (Decentr.)	Employees under 65	3.1
Disabled	Employees under 65	11.8
Short-term Unemployed	Employees under 65	15.4
Medical Costs, special groups	Voluntary	4.5
Medical Costs, special illnesses	All citizens	1.9
Long-term Unemployed	Employees under 65	6.3
Average		3.7

Source: Social-Economic Council (SER) Rapport betreffende alternatieven in de uitvoering van de sociale verzekering (Dutch; Report on alternative ways of execution of social insurance), pp.IV 3, IV 7, The Hague 1972.

As already stated, contributions to insurance schemes are made by employers, employees and the government budget. Some information about the former two are given in Table III.3.3 referring to 1972 and 1973.

Table III.3.3. Contributions, as Percentage of Wages, Made by Employers (1) and Employees (2)

Type of Insurance	1972		1973	
	(1)	(2)	(1)	(2)
General Old Age	0	10.4	0	10.6
Widows and Orphans	0	1.6	0	1.6
General Family Allowance	1.8	0	1.9	0
Employee Family Allowance	3.4	0	3,8	0
Medical Costs	2.6	0	2.65	0
Sickness Compensation (centr.)	6.2	1.2	6.3	1.2
Disabled	5.25	2.55	5.55	2.85
Unemployed (short-term)	0.55	0.55	0.55	0.55
Sickness Compens.(decentr.)	4.45	4.45	4.75	4.75

Source: De Onderneming, 21 December 1973.

III.4 Social Security: Regulations and Benefit Norms

More important for the individuals concerned and their reactions are, of course, the concrete regulations implied in social security. Some of the more important aspects will now be briefly described.

In case of illness employees receive, without delay; 100 per cent of their last wage as compensation. In case of unemployment they receive 80 per cent of their last wage, over a period of half a year as a maximum. If they have not yet found "appropriate" employment they will receive 75 per cent of their last wage over at most a two-year period. The concept of appropriate work is applied in a fairly narrow sense, meaning that if the work to be done differs considerably from their previous work, the unemployed workers have the right to refuse jobs offered to them by the labour bureau. A minimum wage exists which amounted to (per month) f216.90 in 1973 (as against f100.- in 1964). All persons over 65 years of age receive a general old-age pension, irrespective of other sources of income, of f8,370 (as of 1973; in 1964 the amount was only f2,754) per annum for a couple and somewhat more than half this amount for single persons. For comparison: the Swedish old-age pension for a couple amounts to Skr 12,456 or roughly f8,700. In view of the lower income per capita of the Dutch population, its general old-age pension looks favourable. Probably the additional old-age pension is more favourable in Sweden, however. Some more information is given in Table III.4.1.

Table III.4.1. Some Information on Social Security Benefits in EEC Countries, 1 July 1972 (representative cases)

Country	B	D	DK	EIR	F	GB	I	L	NL
Sickness,% of daily wage	60	65-75	90		50-67	85	50-67	70-75	80
Widows, basis of benefit*	op	ip	op	op	op	op	ip	ip	op
% of basis	80	60	66	91	50	100	60	ca65	90
Orphans % of basis	f.a.	20	8	67	f.a.	ca30	40	ca30	ca30
Unemployment,% of daily wage	60	80	100	.	35	100	ca10	60	80

* op: old-age pension; ip: invalidity pension; f.a.: built in in family allowances.

Source: EEC, Comparative Tables of the Social Security Systems Relating to Employees in the Member States of the EC, Statistical Office, Luxembourg.

General Remark: This table constitutes an attempt at presenting what the author understands to be the most representative cases out of usually very complicated systems; he may have misunderstood some of the regulations described by the source.

III.5 Housing

As in many countries housing problems continue to exist in the Netherlands, especially for low-income groups and even more for foreign workers. International comparison shows, however, that housing conditions for the population as a whole are favourable - a fact corresponding with the relatively high value attached to housing needs in Holland, mentioned in section I. This relatively favourable situation is brought out by Table III.5.

Table III.5. Number of Rooms R per Dwelling and Number of Persons P per Room, Before 1960

Country	R	P	Country	R	P	Country	R	P
A 1951	3.5	0.9	E 1950	4.1	1.1	L 1947	4.6	0.8
B 1947	4.0	0.7	F 1954	2.9	1.0	N 1950	3.8	1.0
CDN 1959	5.4	0.7	GB 1951	4.6	0.8	NL 1956	5.1	0.8
CH 1950	4.9	0.8	H 1960	2.4	1.4	PL 1960	2.5	1.7
D 1956	3.9	1.0	I 1951	3.3	1.3	S 1960	3.5	0.8
DK 1955	4.4	[illegible]	J 1958	3.6	1.4	USA 1960	5.2	0.7

Source: Statistical Abstract of the United States, 1963, p. 934.

III.6 Foreign Workers

As in all developed countries, as in the Netherlands, a number of foreign workers performs the unpleasant jobs for which it is difficult to get Dutch workers, at least at the prevailing wage rates. Percentage-wise their number is a bit lower than in the surrounding countries; but it amounts to a few hundred thousands. They are partly "commonwealth citizens" of the "overseas parts of the Kingdom": Surinam (or "Dutch" Guyana) and the ("Netherlands") Antilles. Larger numbers originate from Spain, Morocco, Yugoslavia and Turkey. Their presence reflects the high rate of unemployment prevailing in their own countries as well as the low supply (at present wages) of Dutch workers for the jobs at stake. Although their presence implies some positive elements, the negative side is more serious. Positive elements are of course that they earn more than at home and live under the social regime of the Netherlands; for the Dutch economy the positive element is that the jobs are filled; they are necessary, in a majority of cases, to let the economy operate. The negative elements are that many foreign workers are in Holland without their families and badly housed. In a relatively small number of cases they have been joined by their families and live in an appropriate house. Since there is still a shortage of cheap dwellings, some Dutch groups resent the presence of foreign workers and there have been conflicts in this field. Another negative aspect is the insufficient facilities for training for better jobs; recently some improvement in these facilities has been obtained.

A better solution of the foreign workers' problems would be to make available more financial transfers to their countries so as to create employment for them at home. A restricted number of foreign workers may contribute to better international understanding; but then they should be offered a dwelling and permitted to bring their families. In addition they should be offered training, preferably of use to their future position. They should be employed in activities whose products cannot be traded internationally, for instance building. In these industries their presence would represent a form of exports from their home countries and alleviate their development problem.

IV. OPINIONS ON INCOME DISTRIBUTION, OPPORTUNITIES AND EQUALITY IN HOLLAND

IV.1 Public Opinion on Income Distribution in General

On various occasions the Netherlands Gallup Institute (NIPO) tested public opinion on the question of equity of the existing income distribution. In 1947 it appeared that 16 per cent of the population had no opinion, 31 per cent judged the income distribution was equitable, and 53 per cent found it inequitable. At the same time 39 per cent was of the opinion that a better income distribution was possible as against 34 per cent who thought that it was not. In 1963, 56 per cent of the persons interviewed held the opinion that income differences were too large, 23 per cent that they were just about right, and 5 per cent that they were too small. Of those who had voted socialist 66 per cent considered income differences too large, whereas this percentage was 47 for Protestants and 60 for Catholics. Ironically, among those who had voted socialist 3 per cent thought income differences were too small. On another occasion (1973) it appeared that most of the interviewed persons did not know the taxes they paid (since they are withheld by their employers); 13 per cent only thought taxes were lower than they actually are. Quite recently (February 1974) another poll showed that 65 per cent were "satisfied" and 26 per cent "not satisfied" with their incomes. Understandibly the latter percentage was higher for those with incomes below ƒ 1000 (36 per cent) than for those with an income above ƒ1500 (13 per cent). Among those who had voted socialist (Labour Party) 29 per cent were dissatisfied, whereas among those who had voted liberal (VVD) it was 17 per cent.

Another inquiry asking "which differences between individuals were most important" showed that of the twelve differences mentioned income differences were mentioned by 88 per cent of the interviewees, as against class differences 73 per cent, employer/employee difference 67 per cent, university educated vs.others 60 per cent, nationality difference 58 per cent, urban vs. rural 34 per cent and small independents vs.workers 33 per cent.

An example of tolerance was given by a well-known moderately conservative university professor who declared in public that university-educated are being paid too much.

IV.2 Opinions and Research on Opportunities

Some research projects carried out in the Netherlands have dealt with the question whether "equal opportunities" exist for young people of different family background. In 1963 Spitz [13] and De Wolff [4] came to the conclusion that fewer youngsters of "simple background" actually received secondary and university training than were mentally able to. In De Wolff's opinion, in 1960 65 per cent more boys and 95 per cent more girls could have been enrolled in secondary education and 175 and 260 per cent more in third-level education. In later studies Van Heek [21] as well as De Groot [3] doubted whether there is any unused "talent", but in the meantime the numbers enrolled have actually gone up in about the same order of magnitude as mentioned by De Wolff and there need not be a controversy then between the authors mentioned. There is, in addition, concensus on the remaining inequalities of opportunity: they are mainly due to the family and social background in early childhood. As in other countries, experiments are now in execution with supplementary pre-primary-school education to children from disadvantaged surroundings, for instance in two sections of Rotterdam, elaborated by Grandia [7].

IV.3 Two Inquiries with Special Groups of Workers

Two authors dealt with special groups of workers. In 1963 Ter Hoeven [14] published an inquiry with dock workers in Amsterdam and Rotterdam. His findings are that 60 per cent of the Amsterdam and 54 per cent of the Rotterdam dock workers considered the distribution of well-being to be inequitable. Other workers appeared to be less critical: in Amsterdam only 49 per cent and in Rotterdam 36 per cent considered this distribution to be inequitable. The differences between the two cities reflect the fact that Amsterdam workers usually have parents and grandparents who were also workers, whereas quite a few Rotterdam workers have come from rural small-scale enterprises and have parents or grandparents who were independents: the Amsterdam proletariat is "older".

Ydo [24] interviewed, around 1970-1, 1000 metal workers on another set of problems. More than 75 per cent like their work, and younger even more than older workers. Also, 58 per cent held the opinion that piece rates are equitable; 44 per cent even thought that piece rates positively influence pleasure in work.

IV.4 Political and Trade Union Programmes

All political parties have, in their programmes, a number of statements on income distribution policies. As a rule the newer ideas are to be found in the programmes of the leftist parties, and the other programmes usually follow only partially and with some delay. Since the three left of the centre parties which form the hard core of the present (spring 1974) government formulated, before the elections of 1972, a common Manifesto, entitled Turning Point 1972 (Keerpunt 1972, Amsterdam 1972) present tendencies can best be identified from this publication. As the government is composed of two more (confessional) parties, which are less radical, the government programme does not contain all the elements to be listed. Turning Point 1972 deals with the following main aims: (1) democratization, (2) well-being, (3) distribution, (4) financial and economic policies, (5) housing, (6) environment, (7) world-wide distribution of well-being, and (8) peace and security. For the present report the relevant items are to be found in Chapters 2 and 3. In Chapter 2 the well-known formula of "equal opportunities" is subscribed to, without an attempt to give it a more precise content than its having to be adapted to "personal capabilities". Among the measures proposed obligatory pre-primary schooling is mentioned "based on schooling maturity" rather than age. Partial obligatory school education for 15- and 16- year-olds is proposed to be expanded to at least two days a week and for 17-year-olds to one day a week.

In Chapter 3 a proposal is made to raise minimum wages at a higher rate than average wages. Equal pay to women and men for comparable work (not yet existing in the Netherlands) is demanded. Obligatory sharing of employees in wealth increase, to be financed from surplus profits, is proposed. For the population as a whole an additional old-age pension is set as a target, to be reached in ten to fifteen years, bringing total old-age pension to at least 70 per cent of the last labour income earned. The amount must be adapted to cost of living or the general wage index. Simplification of social insurance is announced. Incomes and wealth will have to be published. An interesting footnote to this programme item is that a recent public opinion pool showed 65 per cent of the Dutch population to be against such publicity, already existing for more than a century in Norway and Sweden.

Financial transfers to developing countries are announced to rise to 1.2 per cent of GNP in 1976. It should be noted that the programme was published a year before the "oil crisis".

Trade unions are divided, as mentioned in Section I.3, and the item of sharing of wealth increases originates from the largest trade union central, closest to the labour party. The industrial union of this central in 1973 was in favour of income increases equal in absolute amount for all employees ("cents and not per cents").

IV.5 Industrial Democracy

Ever since 1925 proposals to increase the influence of employees in decision making in the enterprise have been formulated by the labour movement. In the first few decades most workers were not particularly interested in the issue. During the Great Depression and the Second World War more important things were at stake; and this can also be said about the period of post-war reconstruction. In 1950 "enterprise councils" were introduced by law, which had to serve as a meeting and discussion place for representatives of employees and of management. The terms of reference of these councils are limited, and mainly cover social issues such as secondary labour conditions, not regulated by other laws and by collective bargaining. Management is obliged only to "inform" the council on the economic development of the enterprise, and on matters regarding the terms of reference. Members are elected by all employees over 21 years of age who have been employed for at least one year in the enterprise. Members themselves must be 23 years old at least and have been employed for at least three years. Elections are held every two years.

The Socio-Economic Council (SER), an important advisory body at the national level, in its Advice to the government on the Extension of the Terms of Reference of Enterprise Councils (1968, Nr 13, The Hague 1968) proposes that the Enterprise council must be informed and consulted on "important measures" planned by management before the final decision is taken. Important measures are those which can be expected to affect the work, labour conditions and labour environment of a substantial number of employees, such as a change of location or closing down of parts of the enterprise, important expansion or reduction of activities, substantial mechanization or automation, amalgamation with or stopping of co-operation with another enterprise. In case a substantial number of employees will be dismissed, the head of the enterprise, together with the trade unions concerned, determines the moment at which the Enterprise Council must be informed in order to be consulted on the execution of such measures.

In the political document Turning Point 1972, discussed in Section IV.4, "agreement" with the Enterprise Council on important measures as just discussed is demanded, an important difference.

Some of the subjects mentioned are now discussed in an advisory Commission on the necessary changes in company legislation.

V. SOME FORECASTS ON FUTURE INCOME DISTRIBUTION

V.1 Simple Extrapolations

In view of the increased interest in questions of distribution of well-being there is a need not only to know the existing income distribution and redistribution machinery, but also to make an attempt at forecasting income distribution for the next few decades. Only quite recently the number of studies undertaken in the Netherlands and bearing on the country itself as well as comparable countries has increased substantially.

Figures on income distribution have been estimated for the period 1921-1964, expressed by the relative average deviation $\underline{d}$ for incomes above a minimum of f 1400 in 1921-1938 and f 5000 in 1964. This statistic $\underline{d}$ is found as the average (for all incomes considered) of the absolute value of the difference of each income with the average income and expressed as a percentage of the latter. Its value was calculated by the Central Bureau of Statistics [2] and fell from 72 in 1921 to 48 in 1964, that is by one third in a period of 43 years. Another measurement by Mustert [10] indicated a reduction by one sixth in the period 1950-1967, hence in 17 years. With the primitive assumption of equal percentage reductions per annum (as a trend), this reduction would have been 0.8 per cent for the former series and 1.0 per cent for the latter. Elsewhere I compared figures for various countries and concluded that such a crude extrapolation shows an average decrease of inequality per annum of 0.7 per cent. A reduction to one-half of existing inequality would last 50 to 85 years [[illegible]].

V.2 More Sophisticated Forecasts

Evidently simple extrapolation is not a very satisfactory method of forecasting. If a socio-economic model is taken as the basis for forecasts there is at least a possibility of making a set of consistent forecasts for a number of variables interrelated by the model. Even so some of the exogenous variables of the model will as a rule have to be predicted in a similar fashion, that is, by a more primitive and more subjective way, although not necessarily so; and the predicted values of the endogenous variables are consistent at least.

I apologize for feeling that so far the model I introduced /16/ is more realistic than some other models, one for the Netherlands /8/ and some others for the United States. I except from this value judgement the models recently presented by Freeman /6/ and Ullman /20/. In what follows I will set out in plain language what my model boils down to and in what respects differences of opinion exist at the moment of writing (February 1974). The model was a subdivision of the Dutch active population in five groups, each characterized by two suffixes, h and h', where h indicates the nature of the job held through the required level of schooling and h' the actual schooling completed. Both h and h' can assume three values only, 1, 2 and 3, standing for primary, secondary and third-level education. Of the nine possible combinations only those where $h = h'$ and where $h = h' - 1$ are assumed to exist. This reflects scarcity of skill as far as obtained by the schooling system and the absence of people for whom $h = 3$ and $h' = 1$. The primary incomes of each of the five groups are supposed to be the result of the demand for and supply of the various combinations h, h' in the five market compartments. Demand is exerted by the organizers of production, who are maximizing profits under free competition and hence pay incomes equal to the marginal productivity of each group. Marginal productivity is derived from a generalized and somewhat amended Cobb-Douglas production function. Supply of the various categories is derived from a utility function by maximizing utility under the constraint of a given h' in the short run. Supply also depends on the tax rates applied (and assumed given), since only secondary income matters for utility, alongside with the character of the job h and the tension between h and h'. In the longer run the numbers of individuals F_1, F_2 and F_3 with, respectively, first, second and third-level schooling are changing as an outcome of the numbers enrolled in the corresponding type of educational institutes. These figures are assumed to be exogenous and so are the exponents of the Cobb-Douglas production function, written as p_1, p_2 and p_3 respectively. Since p_3 refers to only one category of labour, namely those having a third-level education, it indicates the portion of total income paid for third-level educated labour. From various studies I derived a long-term relationship between p_3 and average per capita income (in 1970 dollars) in various countries and periods which fitted three different groups of data. Dividing p_3 by the number F_3 of this category we find per capita income and this can be compared with either average labour income or average labour income of those who completed primary and secondary school.

Combining my own estimates of p_3 with Passenier's forecasts [11] of the number of university graduates as a percentage of total active population I arrive at an estimated ratio of incomes of academics to average incomes as shown in Table V.2. Here it has been assumed that the number of third-level educated develops proportionally to the number of university graduates. For the number of professional and university enrolments this is correct between 1900 and 1964.

Table V.2 Incomes per Capita Y in US dollars, Share p_3 of University Educated in National Income, Percentage n of the Latter in Active Population and Ratio of Income of the Latter to Average Income, the Netherlands 1900-1990

Year	1900	1930	1960	1970	1980	1990
Income per Capita, 1970 $(Y)	730	1120	1630	2430	3250 [1]	4350 [1]
$p_3 = 0.020 + 24.10^{-6}\ Y$	0.038	0.047	0.059	0.078	0.098	0.124
$\underline{n}$	0.54	0.61	1.32	1.82	3.33	5.0
Ratio $= \frac{100p_3}{\underline{n}}$	7.0	7.7	4.5	4.3	2.9	2.5

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1) Rate growth of income per capita assumed at 3 per cent p.a.

My conclusion was not at all shared by Kuipers [8] who holds the opinion that the demand elasticity of substitution for academics with regard to non-academics is -5, an opinion shared by Bowles [1], Dougherty [5] and Psacharopoulos [12]. My interpretation of the material used by the latter three authors is that they do not estimate a substitution elasticity of demand, since they insufficiently separate demand from supply relations. My own estimate from their material yields an elasticity of -1, supporting my use of a Cobb-Douglas function for third-level educated versus all other [17]. I do agree, however, with the authors mentioned that other substitution elasticities are much higher and showed this elsewhere [18].

VI. SOME REMARKS ON EQUALITABLE DISTRIBUTION

VI.1 Can Equity Be Defined?

The discussion about equity or justice in distribution of both incomes and jobs is age-old. The basic concept of justice as seen by liberals in the European sense was that there should be equality between what an individual gives to society (in the form of productive contribution) and receives from society as income. This concept is not adhered to by many others, among them socialists of all shades, who do not believe that innate talent is a "just" basis for income; nature is not "just".

The critics have not so far given a very satisfactory alternative definition, however. Closest to a more accurate definition is that equity consists of the existence of equal opportunities. To my knowledge no measure of opportunity has been proposed.

In some recent publications I proposed that equity should be equality of welfare (or ophelimity or utility), disregarding highly personal sources of welfare such as friendship, love or religion. This definition only makes sense if welfare can be measured and I proposed a method and applied it, in a primitive way, as a first example /19/. After having completed this first attempt I found that Van Praag /22/ had developed another method of measuring utility, through direct interviewing of individuals, and attained a number of interesting results. We are now working on an attempt to integrate our methods and the preliminary results look promising. Together with Mrs. Nienke Bouma we hope to publish these results towards the end of 1974.

In the meantime I made another (heroic or crazy, as you like) attempt to test my crude exercise with Dutch data and instead took figures for Illinois. Since I got about the same results I venture to summarize them - with all the reserve they need - by submitting that income differences (with a given average income) should be half the present (1960 or 1970) differences.

VI.2 Can An Equitable Distribution Be Attained?

Taking for granted, for a while, that an equitable distribution of incomes and jobs should be as just suggested, the question arises whether we can hope to attain it. According to the primitive extrapolations of Section VI it might take another 50 to 85 years, which is not encouraging. According to Table V.2 the period might be shorter. Taking the average figure of the Ratio for 1960 and 1970, that is 4.4, the question is when it will have become 2.2. If the tendency of Table V.2 were correct and were to continue, the latter figure could be attained around the year 2000.

The interesting feature of the model used is that the degree of inequality in incomes appears - not as a simple consequence of higher average incomes as has been thought before, but - as the result of a "race". On the one hand technological development tends to raise the demand for highly qualified people and so to raise inequality in incomes, whereas on the other hand the expansion of education has the tendency to produce more highly qualified and so to depress their incomes and inequality. This interpretation may explain why in recent decades income distribution has not changed much in the United States. The means to reduce inequality would consist in speeding up education, but might also be an attempt to redirect technological development by more concentration on technology requiring less qualified labour.

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How to Disagree with Tinbergen's Paper

by

Jan Pen

This note was written for the sake of discussion. It's author, being an egalitarian himself, feels sympathy for Tinbergen's goal (the halving of present income differences in the Netherlands) and Tinbergen's instruments (mainly education); moreover, he admires Tinbergen's method (in Tinbergen's own words: "heroic" or "crazy" endeavours at quantification). Yet, as a sceptic, he is aware of a number of weak spots in the reasoning. The following list of five points starts at the end of Tinbergen's paper, and works backwards to the beginning.

The Tinbergen concept of equity boils down to equality of welfare, disregarding highly personal sources of human happiness like friendship, love and religion. In principle, this definition of equity leads to the acceptance of only one kind of inter-group income differences: those compensating job-disutility. (Apart from these inter-group differences, individual incomes should differ according to family-size, health outlays, special wants, etc.). However:

(a) A meritocratic critic may maintain that equity requires renumeration of merit. Excellent football players, surgeons, painters, should be paid high incomes because they deserve it. A Tinbergian may answer that the distribution of talent is basically unjust, but this is a matter of ethics. The clash of opinions on what is just or unjust may leave matters unsettled;

(b) An aristocratic critic may tell us that equity cannot be separated from the goals we have in mind for society as a whole. Levelling leads to a vulgar type of society, to coarse enjoyments. Inequality of wealth provokes High Culture. If in the Baroque Period incomes had shown a Tinbergian distribution, the Brandenburg Concertos would not exist.

The counterargument refers to the necessity of changing cultural patterns in such a way that social and economic equality broaden and deepen culture instead of destroying it. The instrument is the same as the Tinbergian instrument for decreasing income differences: education. Moreover, public authorities should take over the Maecenas-function of the ci-devant rich. But, of course, the aristocratic critics will not be convinced.

(c) A Rawlsian (J. Rawls, A Theory of Justice, 1972) critic may adduce that income differences are in accordance with justice if they improve the position of the least favoured. Though Rawls professes to be an egalitarian, this "Difference Principle" opens the door to enormous income inequalities. This is particularly true if one agrees that profits may be necessary to stimulate economic progress. A low level of profits may lead to stagnation, and unemployment - indeed to highly inequitable situations. A possible answer to this criticism is that we should arrange society in such a way that profits are no longer necessary. But the Tinbergen paper does not mention the possible need for a far more incisive re-organisation of society.

The Tinbergian wage and salary structure is governed by the goal of compensating job disutility by income. But Tinbergen's result (halving of the present income differences) seems hardly consistent with his stated goal. In his equitable income distribution academics, managers, etc. still earn high incomes. If we compare two people: one, a university professor with an impressive amount of freedom in choosing his own time schedule, job content, scientific hobbies to be pursued; and the other, working in a factory and being linked to a machine, then there is no doubt that the traditional income relationship should be completely reversed. A job that opens the prospect of participating in conferences like the present OECD meeting should pay a very low salary.

The consideration that pleasant jobs are now often better paid than unpleasant jobs, and that his own criterion leads to a reversal of present pay scales, is lacking in Tinbergen's paper. The reason lies with the narrow character of the econometrics of equity. Only two job characteristics are taken into account, the actual and the required schooling; and only three groups of jobs are in existence. One might say that this simplification is a first step to the real world of many jobs and many job-characteristics (influencing welfare in many positive and negative ways) but Tinbergen's argument leads to the deceptive result that in our present type of society Tinbergian equity might be reached by a realistic extrapolation of the trend towards income equality. In fact, Tinbergen's own definitions of equity require a far more revolutionary operation, a "Umwertung aller Werte".

The Tinbergian instrument: education. Nobody will deny the importance of education as an instrument to more equal opportunity and to shift in supply-and-demand relationships. But:

(a) An elitist critic may doubt whether Tinbergen's projected increase in the academic group (from 1.8% of the Dutch population in 1970 to 5% in 1990) is feasible. Lack of talent may frustrate the whole scheme, in the sense that students are simply not forthcoming or that university standards are lowered to accommodate the masses. The latter possibility is already perceived by many conservative academics. As a counterargument we may point to American experience; the Tinbergian projections are already actual practice in the U.S. (though the pessimists might venture the opinion that U.S. academic standards are low, at least at the margin where the less gifted students are educated).

(b) Non-economists like Christopher Jencks and some economists like Barbara Wootton may deny that market forces are decisive for wage and salary differences. In their view the income scale symbolizes hierarchy and a system of social values. Most of us will reject this type of criticism, at least in its stronger form. Yet, in many cases supply and demand are obviously ineffective (military pay scales are a case in point, and perhaps the salary hierarchy in a bureaucracy is another - weaker - example). In these cases, a shift in the supply of graduates may exercise a minor effect on income differences.

In other cases, levelling will at least require a certain cooperation from the recipients of high incomes. If the medical and the legal profession try to protect their position by restrictive practices, and if business managers try to make their salary scales immune to levelling, a Tinbergian policy may lead to social conflict. In other words: a levelling policy may require peaceful labour relations (see my last paragraph).

(c) Education not only creates an additional supply of qualified labour, it also creates additional demand. This interdependence is not stressed by Tinbergen. He sees the future of income distribution as the outcome of a race between supply and demand, but he is inclined to see demand as an autonomous factor (to be influenced by policy). As a matter of fact, many graduates have found a job only because that job was created by their colleagues. Biologists employ biologists, and the demand for sociologists in the Netherlands depends mainly on the fact that they serve as inputs to the production of other sociologists. This type of relationship may jeopardize income levelling. The American experience seems to be that a massive increase in education has not brought a Tinbergian income structure.

Tinbergen's somewhat offhand plea for a policy directed towards a technology using unskilled labour invites many questions. For instance: is such a policy consistent with the international division of labour, where developing nations are supposed to specialize in precisely that type of technology? And is a technology using unskilled labour consistent with the requirements of a selective or even zero-growth economy (see my last paragraph)?

(d) Elasticities of substitution between various types of labour with different schooling may prove to be high, whilst an elasticity of unity is Tinbergen's (Cobb-Douglas) hypothesis. High elasticities make the additional supply ineffective as a levelling instrument. This issue seems to be obscured by an overly high degree of aggregation.

Tinbergen divides the working population into a few groups (three or five). Within these groups, the possibilities for substitution may vary a great deal. Very high incomes originate in highly specialized professions where elasticities of substitutions are, at the present state of the medical and legal technology, almost zero. In some cases this may lead to a substantial effect of education on incomes; Dutch dentists and radiologists, who are very scarce, seem to be a case in point. But economists may prove to be easy substitutes for other types of white-collar workers. And in those fields (corporation and fiscal lawyers) where quality is said to play a decisive role, an extra output of university graduates may in itself prove to be ineffective to reduce the high incomes of the happy few. The additional supply may depress the incomes of low quality and low income lawyers only.

(e) The influence on the international mobility of labour. Minimum wages in the Netherlands are now lower than they would have been without the presence of foreign workers. The effect of Dutch education on the Dutch wage structure is strategically influenced by immigration policies. The Tinbergian goal (a halving of income differences) may require an objectionable nationalist labour policy: keep the Moroccans out for the sake of income equality within the Dutch borders. However, the Italians will keep flowing in, unless the Netherlands leave the EEC.

On the other end of the income scale levelling may be frustrated by a brain drain. Though this argument is often presented in an unconvincing manner (the present income relationships do not lead to a substantial emigration of graduates from the Netherlands) a Tinbergian income structure in one isolated country might prove to be unworkable. If the policy is to bear fruit it should be an internationally coordinated policy.

Tinbergen's paper discusses labour income, taxes and social security; it does not discuss profits and property incomes. But according to a Dutch econometrist, W.H. Somermeyer, income variance in the Netherlands in 1958 was for 25% due to non-labour income (before taxes). In the meantime the share of capital in the national income had diminished from 25% to 21% in 1968 (in 1938 it was still 33%). If this trend were to continue, Tinbergen's concentration on labour income might be warranted.

However, it seems unlikely that the share of labour in the national income of the Netherlands can be increased substantially. The share of "passive" capital (dividends, interest, rents) is now at a minimum of 5% of the national income (which implies that bond holders presently receive no real income at all!) and business profits are considered dangerously low in relation to the profitability requirements for business investment. More important: we lack effective policy instruments to influence profits. In general, incomes policies have not proved very successful in respect. The draconian instrument of a deflationary policy, which would create stagnation and unemployment, might depress profits but obviously this type of policy would create more inequities than it is supposed to cure. Tinbergen's educational policy will probably not affect profits in a negative sense - it may even increase some profits by increasing the rate of innovation in production and the dynamics of society generally (whilst at the same time losses are generated, which are unjust in themselves). Profits will remain with us, provided that we stick to entrepreneurial capitalism. But this implies that Tinbergen's equitable income distribution will not be realized. This is true for two reasons: First, the distribution of profits and losses among persons, which is, even after taxes, much more unequal than the present distribution of labour income (and a fortiori than the future, Tinbergian distribution of labour income) will obviously escape the norms of equity. Second, the inequality created by profits will upset the whole ideology of equal welfare for all; a university graduate will probably resent a situation in which his own income is in accordance with a Tinbergian one-to-two and a half ratio whilst his neighbour, who is a successful grocer or car-dealer, earns ten times as much. Apart from resentment and rancour such an income structure does not seem very attractive from the viewpoint of social values.

This type of criticism may lead some of us to the defeatist conclusion that a Tinbergian policy is bound to fail and that we should abstain from trying. Others may conclude that Tinbergian fairness can only be realised in a world without non-labour income (that is, in a sociolist world) and that we should try to create such a world. Still others, including myself, will conclude that a massive increase in education ought to be one of our first priorities anyway, but that the effects on the income structure will be only partially favourable; there will be unpleasant side effects and we should be aware of them.

Tinbergen's paper is basically about a growing economy, but the continuance of economic growth may be questioned. Chapter II of the paper shows how economic growth is accompanied by shifts in the patterns of scarcity, by increasing social security and by a growing government sector. The projections for 1990 imply that these trends will continue. Now if a policy in the spirit of the Club of Rome is pursued, or if economic growth is frustrated by sudden bottlenecks and dangerous ecological disturbances, awkward questions may arise. Will it still be possible to absorb great numbers of university graduates in a stagnant society? What will be the distributional effect of sudden bottlenecks - will perhaps new inequalities loom up, caused by favourable market positions of specific types of scarce labour? And, the most disturbing question of all, will people in a stagnant economy accept the harmony and the peaceful labour relations of the Tinbergian society, or will they sharpen class conflict? If these questions are answered in a defeatist manner (which I do not recommend) the whole Tinbergian policy may be doomed from the beginning.

CONCLUSIONS

OECD Secretariat, Conclusions on the Issues Raised by the Seminar

In the course of the seminar, three main dimensions of the equality problem were identified:

a) educational opportunity;
b) opportunity for social mobility (defined mainly in terms of occupation);
c) distributive justice of the structure of socio-economic rewards (defined mainly in terms of income).

The present paper attempts to identify the policy issues raised by the seminar under each of these three heads. It does *not* represent conclusions endorsed by the seminar itself, and is not intended as a summary of the discussion which was not confined to policy but ranged over a number of analytical issues not covered here.

Educational Opportunity

Equality of educational opportunity commands support as a policy goal for two reasons. There is, firstly, a liberal humanistic commitment in OECD countries to provide effective possibilities for personal fulfilment via education irrespective of social class. Equal educational opportunity is also widely expected to foster career opportunities based on merit.

It is possible to assess progress towards equal educational opportunity in two ways:

a) by looking at social differentiation in *access* to education in terms of enrolment ratios. Difficulties in measuring social origin mean that this indicator is rather crude. Nevertheless, the evidence in the secretariat background paper seems quite unambiguous, i.e. present educational options are systematically and heavily skewed in favour of the socially privileged in all OECD countries, though in virtually all cases such disparities were reduced in the 1960s;

b) a second way of looking at the problem is in terms of educational *performance* - as Pfaff and Fuchs did in their paper on Germany - using data on examination results by social origin. This approach confirms the picture shown by *access* statistics, i.e. a present position far from meritocratic, but moving in that direction. The extent of social disparity is greater as measured by performance criteria than by access.

Although present education systems are far from being meritocratic, there was broad agreement that policy targets should be specified ambitiously in terms of *equality of achievement by broad social group*. This does not mean equality of achievement between individuals. This cannot be a realistic target because innate capacity varies so much between individuals.

The seminar considered the concept of reduced meritocracy discussed in the paper by Eicher and Mingat, i.e. differential targets for each social group which allow for I.Q. variance; but those who expressed opinions on the topic felt that present evidence on the relative importance of heredity and environment in determining the inequalities of social groups is as yet too weak to provide a basis for policy or to present reasonable estimates of the cost of offsetting such handicaps.

The seminar discussed the major policy weapons which might be used within education. Although the discussion was only tentative, nearly all participants considered schooling to be a significant instrument in fulfilling the equal opportunity goal, i.e. they did not feel that differences in I.Q. and home background are such major obstacles as some critics have suggested.

A major emphasis in the discussion was on problems of the teenage group, where the operational impact of social selectivity mechanisms is concentrated. The following major policy weapons for equality of opportunity were considered:

a) in most countries, a major instrument has simply been the expansion of postcompulsory school facilities to meet and encourage demand. As the upper social groups were much closer to exhaustion of their demand for postcompulsory education, the effect of the massive expansion of the 1960s was to expand opportunity for lower income groups - both because facilities expanded and because incomes went up, enabling people to sacrifice their children's earnings as they attended school longer;

b) all governments have greatly expanded the finance available to meet maintenance costs of students in higher education either by grants or loans. Whilst this has helped increase enrolment ratios for the lower income groups in higher education, several of the seminar papers (notably Woodhall and Pfaff) stressed the need for similar financial support at the secondary level,which is where selectivity mechanisms operate most strongly. Although some countries, e.g. Germany, have reasonably generous grants for secondary school attendance, it was felt that, on balance, Member countries might well place more emphasis on help at the secondary level and if necessary be somewhat less generous with maintenance support at the higher level;

c) there was strong emphasis on the merits of non-selective secondary education i.e. support for the movement under way in most Member countries towards comprehensive schooling as an equalising instrument. It was recognised, however, that many problems of a pedagogical and organisational character need to be solved before comprehensive schooling can successfully reconcile the need for individualised treatment of youngsters with reasonable equality of results;

d) there was general support for an expansion of recurrent education to provide second chance options or opportunities for further development. The efficacy of vocational training after labour market entry was particularly stressed and it was stressed that maintenance support for students in recurrent education should be as generous as that in regular education;

e) there was support for the idea of positive discrimination for the educationally handicapped, for deprived areas, and for preprimary education. But it was clear that the basic issues here are, how much positive discrimination is warranted and how do you identify those needing help? At the moment government policies of this kind are a small part of education budgets, and guidelines for policy are obscure.

Other policy issues were adumbrated without thorough discussion, e.g. whether the length of the compulsory phase should be extended or diminished, whether reduction in class size helped learning, policies towards elite institutions such as the grandes écoles and appropriate pedagogic strategies. The question of private schooling was virtually ignored in the discussions, though is obviously an important factor promoting social segregation in some cases. For this reason, abolition of private education might well be considered as part of an egalitarian policy agenda though this raises in a particularly acute form the conflict of goals between egalitarian and libertarian objectives.

Obviously any prescriptive approach to policy has to be based on detailed country analysis because the appropriate policy-mix depends heavily on the stage of educational development a country has reached, its institutions, and history. In countries where the mass of the relevant population are already in secondary school, as in the U.S.A., pedagogic problems may well loom much larger than the economic in securing equality of cognitive achievement between social classes. It would, therefore, be appropriate to follow such a seminar by a pilot review exercise for one or two countries interested in improving the effectiveness of policies for equal opportunity.

Opportunity for Social Mobility

There was less agreement on policy goals in this area. Some felt that too strong an endorsement of social mobility as an autonomous policy goal in its own right may serve to legitimate wide inequalities of economic and social rewards which cannot be justified on either equity or functional criteria. But this view was not shared by other participants.

Even those who felt it important to improve social mobility found it difficult to define objectives or measure policy performance very specifically. Most measures of mobility show movement between occupations in a prestige ranking, but distance between ranks is not measurable. Furthermore, stratification has several dimensions and there may well be discordance in the ranking of individuals on different criteria, e.g. income versus occupational prestige. Concepts of social distance also change over time. Miller's manual non-manual dichotomy was considered by some to be outmoded, though it was clear that international comparisons necessarily involve very aggregative measures. Tinbergen stressed the difficulty of the equality goal in this area, given the very limited number of élite positions to which people can accede.

The papers of Diez-Nicolas, Halsey, Keyfitz and Miller show that considerable progress has been made in assembling mobility studies and in developing techniques to disentangle the causal factors in social mobility. Nevertheless, a good deal more work needs to be done before firm conclusions can be drawn on the role of education in social mobility.

This is a field in which the strength of different policy weapons is hard to assess, but six major aspects were discussed by the seminar:

a) educational policies to promote equality of cognitive attainment by social class would obviously be of considerable importance, though Boudon asserts that the link between educational meritocracy and job meritocracy is not as strong as was once assumed;

b) the importance of providing adequate education and training facilities for people who had already entered the labour market and wished to strengthen both their technical qualifications and general education was given very considerable stress. The effectiveness of policy in this direction is particularly great because the beneficiaries are likely to know better than those still in formal education what the pay-off of further training can be. Equity also required that beneficiaries of such training should have access to maintenance support on a basis as generous as that given to people in the post-compulsory phase of formal education. This point was particularly stressed by Woodhall;

c) views differed on the importance of credentialism but Miller gave great stress to the need to remove formalistic non-functional barriers to economic advancement in the form of diploma requirements. The scope for action here seems greatest in the public sector;

d) in pursuit of vertical mobility, some governments, and particularly the U.S.A., have used positive discrimination in hiring practices in the public or publicly supported sector to promote the interest of women or minority groups. The same instrument can be used to deal with vertical inequality, though this has never really been done in OECD countries;

e) Professor Visalberghi recommended public service employment for people entering the labour market for the first time, particularly those with a privileged educational background. In this way everyone could have some experience of "dirty jobs", and this would help to mitigate social diviseness;

f) finally, it was agreed that inheritance of property was an important obstacle to equality of opportunity for entry to the top élite, and that it should be taxed more heavily and effectively in most OECD countries both to improve equality of opportunity and to promote equality.

Distributive Justice of the Structure of Socio-Economic Rewards

Absolute equality of socio-economic rewards is not a practical objective of policy because it raises too strong a conflict with considerations of efficiency and freedom. Most participants did agree, however, that existing inequalities are much larger than is necessary to sustain high rates of economic growth, and that further moves towards equality are both desirable and feasible. Lindbeck's paper demonstrated the situation in an OECD country which had combined strongly equalising governmental policies and a respectable rate of economic growth.

There was considerable discussion of what measure was most appropriate as a general proxy for socio-economic welfare. This concept has several different dimensions encompassing class, status, power and quality of working life. All general purpose measures pose problems, but the most accepted overall proxy is income - broadly defined to include fringe benefits.

Governments can intervene to affect the distribution of income from work and property directly or modify the impact of "market forces" through taxes and transfer payments which will modify income distribution.

Direct methods of regulating factor income distribution are much more common in communist economies than in OECD countries where the preferred method is generally via tax and transfer policy. However, the distribution of education between persons may be expected to affect the distribution of income from work.

Views differed on the importance of education as a weapon for influencing the distribution of earnings. Okner and Rivlin argued that education had not had much impact on earnings structure in the U.S.A., but Watanabe showed a powerful influence in Japan, and Tinbergen tried to show its influence since 1900 in the U.S.A. and Netherlands and predicted that it would be important in the Netherlands in future. Furthermore, Mincer argued that the U.S. results were not surprising considering the small changes in the distribution of the level of education between persons which had occurred. The secretariat background paper showed that educational expansion does not always narrow educational differentials. In this connection, and specifically for the U.S.A., Mincer thought that the failure of educational differentials to narrow (prior to 1970) may be traced to a concomitent growth in demand for educated labour.

Even those who felt that education could have a powerful influence on earnings, felt that educational policy was not necessarily the best weapon to achieve such a goal. There is a large time lag before educational expansion can have much impact on the stock of skills, and its exact impact is not predictable because technology changes affect demand for trained people, supply and demand sometimes interact, and the impact of education on earnings differentials can be greatly modified by migration. Furthermore, such a policy may have a very high cost both social and psychological (for people with frustrated expectations) the policy could be defeated by recalcitrance on the part of those who foresaw little return on their education, and in any case it would not cover income from capital. Equalisation of unearned income would have to be dealt with by tax and transfer policy. For these reasons it would seem that income equalisation could, therefore, only be an incidental and not a major objective of educational policy.

In several OECD countries, the range of income before taxes and transfers is rather similar. There is also reasonable similarity in the aggregate amount of tax and transfer activity carried out by governments. The really striking difference is in the redistributive impact of policy. This is large in Scandinavia and the Netherlands but rather small in other Member countries. The intercountry variation in the impact of policy is particularly noticeable in the case of the rich on whom the tax burden is not nearly so progressive in some countries as it appears, and in fact is often not progressive at all.

There is, therefore, demonstrably large scope for income equalisation without harm to growth, or without any significant change in the theoretic progressivity of the tax system. The problem is mainly one of bringing reality more in line with the rhetoric of progressivity.

It would help a good deal towards better policy assessment if statistics on income distribution could be improved. At the moment, the statistics are extremely poor and urgently in need of improvement. Broader concepts of income are needed which make fuller allowance for fringe benefits and the advantages of property ownership. More information is needed on the distribution of income by age group, and between people with different working hours. Income should be measured in terms of family income per head rather than the income of tax units. Bentzel argued strongly for measuring consumption instead of income. Longer periods than one year are needed in measuring income.

There was also some discussion of measures of inequality. It was agreed that aggregative measures could be useful but also misleading, and enough detail should be available by milliles and percentiles of the population so that policy makers can identify specific target groups.

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